The influence of ethnicity and beliefs on the course and outcome of schizophrenia in Singapore

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Thesis submitted for the degree of Doctor of Philosophy
of the
University of London

University College London

2002

ABSTRACT

The aim of this thesis was to examine the extent to which the ethnicity of patients and their beliefs about the causes of schizophrenia affects the course and outcome of the illness in Singapore. As course and outcome are also affected by various other factors, the influence of these factors was also investigated.

The first study on the lay beliefs of samples of the Chinese and Malay Singaporean population about the causes of schizophrenia showed that psychosocial factors were the most frequently cited cause of schizophrenia. This was consistent with other studies. The beliefs elicited from this sample formed the basis for the development of a culturally-relevant beliefs questionnaire.

The beliefs questionnaire was administered to a cohort of 230 inpatients readmitted for relapse of schizophrenia to Woodbridge Hospital, Singapore's state mental institution. Factor analysis of their responses revealed seven categories of causal beliefs and three categories of treatment approaches. Results from this second study showed patients believed that supernatural factors were the main cause of their illness. Influence of certain demographic factors also emerged. Caregivers of these patients were administered the caregivers' version of the questionnaire. Significant differences were found between patients and their caregivers in certain categories of beliefs. Patients and caregivers strongly endorsed professional treatment methods.

The third study examined the effects of a psychoeducation intervention on the course and outcome of the illness of this cohort of patients. The influence of other factors were also investigated. Ethnicity had a significant effect on social and psychological functioning and community tenure but not on illness severity or rehospitalization. Beliefs in biological causes and biomedical treatment methods predicted reduced symptoms and better insight. Caregivers' beliefs did not impact significantly on patients' outcome. Clinical implications of these findings and directions for future research were discussed.

ACKNOWLEDGEMENTS

First and foremost, I would like to thank my supervisor, Professor Chris Brewin for his guidance, time and support in this research. I am grateful to the support staff of the Sub-Department of Clinical Health Psychology, UCL for being so helpful whenever I was in College.

I am grateful for the support of Professor EH Kua, Chief Executive Officer and Medical Director of Woodbridge Hospital Singapore, during the writing-up phase of my thesis. I would like to thank my colleagues at work for their support and understanding, and in particular, I would like to thank my very dear friend and colleague Associate Professor SA Chong for all his support, encouragement and input, intellectual and otherwise, throughout this whole period. Thanks go also to Dr YH Chan of CTERU for his advice on statistics.

I would like to express my thanks to the patients and their caregivers who consented to participate in this research. Without their cooperation, this research would not have been possible. I would also like to thank the nursing staff of the acute wards and the outpatient clinic of Woodbridge Hospital for all their help which was always given cheerfully and willingly.

Last but not least, I am grateful to my husband, Jui Leng, my son Chim and daughters Wei and Cher together with their spouses, Cleonice and Richard for putting up very patiently with my absences from the home, and from the kitchen in particular. Thank you all for your constant support and encouragement to persevere even under adverse circumstances.

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Chapter 1

Schizophrenia

What is schizophrenia?

Diseases of the brain and mind have occupied humanity from ancient times. Syndromes recognizable as forms of psychosis appear in the writings of Plato and Hippocrates. Psychosis is a syndrome ie a constellation of symptoms that reflects the distortion of the person's thoughts and perceptions such that there is a loss of boundaries between what is real and what is unreal, between himself or herself and the external world.

Schizophrenia is a form of psychosis and it was only in the early part of the 20th century that the term "schizophrenia" was coined by the German psychiatrist Eugene Bleuler. "Schizophrenia" literally means "a mind that is torn asunder". Bleuler disagreed with Kraepelin's (Kraepelin, 1919) term "dementia praecox" (premature deterioration) to describe the disorder because of the emphasis on chronicity. Instead he renamed it "schizophrenia" to refer to the dissociation or disruption of thought processes and the split among thought, emotion and behaviour (Bleuler, 1950) and the name has remained since. Schizophrenia is therefore a disorder not of "split personality" as it often has been inaccurately called, but one in which the thought and emotional components of mental activity are fragmented.

Results of studies on the prevalence of schizophrenia indicate that about 1 in 100 persons will develop schizophrenia and this disorder seems to be similarly distributed worldwide across geographic, cultural and socioeconomic categories (WHO, 1979; Jablensky et al, 1992). Schizophrenia is often a disease of young people (Andreasen, 1995); the onset of the illness occurs relatively early in life, usually in the late adolescence or young adulthood. It affects men and women equally. The peak age of onset for males is usually in the early 20s while for females it is usually in the late 20s and early 30s. This onset, just as a young person stands on the threshold of adulthood, alongside the lifelong disability, emotional and financial distress it often brings to its victims and their families, makes schizophrenia one of the most tragic and devastating of mental illnesses. It has been referred to as "arguably the worst disease affecting mankind, even AIDS not excepted" (Nature, 1988), because of its profound influence on public health. The direct and indirect costs of schizophrenia in terms of health care expenditures and loss of productivity are tremendous but the cost in terms of suffering of the patients and their families is even greater. A small percentage of patients do well, but most continue to experience some incapacity with no return to normality - few complete their education, maintain gainful employment or marry and have families (Shepherd et al, 1989).

Depression and suicide are common comorbid occurrences in schizophrenia (Siris, 1995; Jackson & Iqbal, 2000). The personal tragedy associated with schizophrenia is tremendous; its victims often feel devastated and demoralised, as if they have lost their autonomy, their identity and mental

capacity (Birchwood et al, 1993); many feel that life is meaningless and 10-15% die by suicide (Black & Fisher, 1986; Roy, 1986; Birchwood & Iqbal, 1998).

Diagnosis of schizophrenia

The symptoms of schizophrenia have been described and recognized for over a century. Until recently, its diagnosis has attracted a great deal of controversy. This is largely because of over-use of the diagnostic label and previously low inter-rater reliability. To address these problems, operationalised diagnostic guidelines were developed to increase the reliability of the diagnostic classification system.

Intense controversy has raged over the diagnosis with many questioning the entire notion of schizophrenia. Some like Szasz (1979) and Laing (1967) have argued against what they consider the "medicalisation of madness" (Pilgrim, 1990). More recently, Bentall et al (1988) and Boyle (1990) have called for abandoning the concept of schizophrenia because "mental suffering cannot be reliably and legitimately classified into subcategories and diagnoses". As such, they argued, the concept of schizophrenia is therefore not clinically and scientifically useful. The complexity of schizophrenia is so great that other early investigators challenged whether it could be defined with sufficient precision to achieve good reliability among clinicians and investigators (Kreitman et al, 1961). Early cross-national studies suggested that there were international differences in methods of diagnosis (Kendell et al, 1971; Wing et al, 1974). Responding to the controversy and to these studies, the World Health Organization (WHO) and

the American Psychiatric Association (APA) have produced criterion-based systems for diagnosing schizophrenia which have shown considerably improved reliability at both the diagnostic and symptom level. These systems are found in the two major diagnostic systems, the tenth International Classification of Diseases (ICD-10) (World Health Organization, 1992) and the fourth edition of the American Psychiatric Association's Diagnostic and Statistical Manual (DSM-IV) (American Psychiatric Association, 1994). The two groups who developed these systems worked closely together so that definitions would be adequately similar to ensure good international agreement. A third system, the "Research Diagnostic Criteria" (Spitzer et al, 1978) the forerunner to the ICD and DSM, was originally developed for research purposes.

Guidelines and structured interviews have been developed, for example, by Endicott & Spitzer (1978) and Andreasen et al (1992) to enable clinicians to standardize diagnostic and investigative methods to enhance reliability. Studies comparing reliabilities of ICD and DSM criteria for the diagnosis of schizophrenia have shown quite impressive results (eg Flaum & Andreasen, 1990) although some residual problems remain. Some investigators, however, claim that the diagnosis of schizophrenia currently stands on very solid ground (Andreasen, 1995). The DSM-IV Task Force has stated that most of the diagnoses have an empirical literature or available data sets that are relevant to decisions regarding the revision of the Manual.

The controversy about the fundamental nature of psychiatry has perhaps benefited everyone involved. Clearer definitions of the meaning of mental illness

have resulted, clarifying the theoretical underpinnings of diagnoses and spurring researchers on to be more stringent in defining diagnostic criteria. It has also allowed for consideration of the cultural context when formulating these criteria. This is what the authors of the DSM-IV have attempted to fulfill and although there may still be room for improvement, it can be said that at least something has been done to heed the justified cries of the cultural anthropologists not to neglect the role culture plays when making a diagnosis.

The ICD and DSM are similarly structured but they differ in the time the symptoms have to be present. ICD requires at least one month's duration of positive and negative symptoms to make a diagnosis of schizophrenia. In DSM-IV, this feature plus at least 6 months of "continuous signs of disturbance" must be present. In addition, the "characteristic symptoms" on which diagnosis is made are commonly preceded by a variety of non-specific manifestations, including attenuated forms of psychotic symptoms.

Although the reliability of these diagnostic criteria has been demonstrated in field trials, it is not sufficient to fulfil the condition of validity. Bentall et al (1988) have advocated that the validity of the concept requires further demonstration. They have made a relevant suggestion that the focus should be on individual symptoms rather than on the syndrome of schizophrenia. This, however, does not necessitate altogether throwing out the concept of schizophrenia. There now seems to be evidence that schizophrenia is seen as part of a continuum or spectrum instead of a categorical syndrome (Crow, 1986).

Diagnostic criteria do not encompass all the conditions for which people are being treated, but they do offer guidelines for making diagnoses because such criteria have been shown to enhance agreement among clinicians and investigators. The purpose of diagnosing and categorizing symptoms is to promote greater mutual understanding, to encourage a "common language" and to allow for accurate, concise communication among clinicians. The purpose of DSM-IV is to provide "clear descriptions of diagnostic categories in order to enable clinicians and investigators to diagnose, communicate about, study and treat people with various mental disorders" (American Psychiatric Association, 1994).

The DSM-IV was developed for use as a clinical, educational, and research tool. Its writers advocated that the manual aims to serve only as a guideline "to be informed by clinical judgement and not meant to be used in a cookbook fashion" (DSM-IV, 1994); and only to be used by individuals with appropriate clinical training and experience in diagnosis. Psychiatrists and other mental health professionals have gladly welcomed the newer multiaxial classification in which the personality, physical health and preceding life stresses have been taken into consideration in making a diagnosis (Littlewood, 1992). Furthermore, in this latest revision, special efforts have been made to take into consideration the fact that the manual will be used both in the United States and internationally with culturally diverse populations. Critiques have been invited from international experts chosen from diverse clinical and research disciplines, backgrounds and settings. This is to ensure that the revised manual has

available an unbiased and comprehensive pool of information that would be applicable across cultures.

A clinician from one ethnic or cultural group, when assessing a patient from another ethnic or cultural group, may not be familiar with the subtle ways that a patient's cultural frame of reference differs from his/her own. He/she may, therefore, incorrectly judge as psychopathological those normal variations of behaviour, belief and experience that are peculiar to the patient's culture. To enhance the cross-cultural applicability, a culture-specific section together with an outline for cultural formulation has been provided in the text, and a glossary for culture-bound syndromes has also been included in the DSM-IV (Refer Appendix I). The culture-specific section discusses the cultural variations in the clinical presentations of those disorders that have been included in the DSM-IV Classification and the outline for cultural formulation has been designed to assist the clinician in systematically evaluating and reporting the influence of the patient's cultural context.

The system of diagnosis used in this study will be the DSM-IV and the diagnostic criteria for schizophrenia are found in Table 1.1.

Table 1.1
Diagnostic criteria for Schizophrenia
(from Diagnostic & Statistical Manual of Mental Disorders, fourth edition)

A. *Characteristic symptoms:* Two (or more) of the following, each present for a significant portion of time during a 1-month period (or less if successfully treated):
(1) delusions
(2) hallucinations
(3) disorganized speech (eg frequent derailment or incoherence)
(4) grossly disorganized or catatonic behaviour
(5) negative symptoms, ie, affective flattening, alogia or avolition
Note: Only one Criterion A symptom is required if delusions are bizarre or hallucinations consist of a voice keeping up a running commentary on the person's behaviour or thoughts, or two or more voices conversing with each other.
B. *Social/occupational dysfunction:* For a significant portion of the time since the onset of the disturbance, one or more major areas of functioning such as work, interpersonal relations, or self-care are markedly below the level achieved prior to the onset (or when the onset is in childhood of adolescence, failure to achieve expected level of interpersonal, academic, or occupational achievement).
C. *Duration:* Continuous signs of the disturbance persist for at least 6 months. This 6-month period must include at least 1 month of symptoms (or less if successfully treated) that meet Criterion A (i.e., active-phase symptoms) and may include periods of prodromal or residual symptoms. During these prodromal or residual periods, the signs of the disturbance may be manifested by only negative symptoms or two or more symptoms listed in Criterion A present in an attenuated form (e.g., odd beliefs, unusual perceptual experiences).
D. *Schizoaffective and Mood Disorder exclusion:* Schizoaffective Disorder and Mood Disorder With Psychotic Features have been ruled out because either (1) no Major Depressive, Manic , or Mixed Episodes have occurred concurrently with the active-phase symptoms; or (2) if mood episodes have occurred during active-phase symptoms, their total duration has been brief relative to the duration of the active and residual periods.
E. *Substance/general medical condition exclusion:* The disturbance is not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition.
F. *Relationship to a Pervasive Developmental Disorder:* If there is a history of Autistic Disorder or another Pervasive Developmental Disorder, the additional diagnosis of Schizophrenia is made only if prominent delusions or hallucinations are also present for at least a month (or less if successfully treated).

Classification of longitudinal course (can be applied only after at least 1 year has elapsed since the initial onset of active-phase symptoms):
Episodic With Interepisode Residual Symptoms (episodes are defined by the reemergence of prominent psychotic symptoms); *also specify if:*
With Prominent Negative Symptoms
Episodic With No Interepisode Residual Symptoms
Continuous (prominent psychotic symptoms are present throughout the period of observation); *also specify if:* **With Prominent Negative Symptoms**
Single Episode In Partial Remission; *also specify if:* **With Prominent Negative Symptoms**
Single Episode In Full Remission
Other or Unspecified Pattern

Presentation of symptoms in schizophrenia

Symptoms of schizophrenia are generally divided into three categories: positive symptoms, negative symptoms and disorganised symptoms.

Positive symptoms refer to the presence of mental features that should not be normally present. These include delusions which are false beliefs without any basis in reality and which are not in keeping with the person's educational, cultural and religious background. Other symptoms are hallucinations which are perceptions of stimuli that have no external reality, like auditory, visual, tactile, olfactory and gustatory hallucinations.

Negative symptoms refer to a lack or reduction of emotional responses and psychological functionings that should normally be present. These are manifested as affective flattening (difficulty in expressing emotions), alogia (limited or poverty of speech with consequent inability to initiate or maintain a conversation), avolition (extreme apathy with lack of initiation, drive or energy which result in academic, vocational and social deterioration), anhedonia (lack of interest or pleasure in life), asociality (social withdrawal and few social contacts) and attentional impairment.

Disorganised symptoms refer to disturbances in thinking and speech, and bizarre behaviour. The disturbance in thinking (thought disorder) is inferred from the person's speech, which usually reflects the loosening of the link between one thought to another. The person may shift from one topic to another completely unrelated topic without realizing it makes no logical sense. New words may be made up that have no meaning to others. Behaviour may also be

abnormal and manifested as strange mannerisms, doing seemingly senseless things or assuming bizarre postures.

Although positive, negative and disorganised features suggestive of schizophrenia may be present, none of these clinical features are pathognomic. Physical disorders and psychosis often overlap and it is essential for patients to have a comprehensive physical assessment to exclude psychosis arising from medical and/or organic causes.

Different types of schizophrenia have been described. A patient whose symptoms are most often coloured by feelings of persecution is said to have "paranoid schizophrenia"; a patient who is often incoherent but has no delusions is said to have "disorganized schizophrenia". Less commonly seen is "catatonic schizophrenia" where the patient has some form of motor abnormality like stupor, mutism, and/or extreme agitation. A patient who no longer has prominent positive features but still has some evidence of the illness is said to have "residual schizophrenia".

Course of schizophrenia

The course of schizophrenia has been said to be heterogeneous and its outcome can follow various patterns (Shepherd et al, 1989; Angst, 1988; McGlashan, 1988; Harding, 1988, Carpenter & Kirkpatrick, 1988). It may present as a once-in-a-life time acute illness, or it may result in lifelong dependency, its chronic course periodically interrupted by acute relapses (Rose, 1994).

The onset of schizophrenia may present acutely or insidiously, the latter being often associated with poorer prognosis (Crow, 1980). The initial change may be so insidious that it may not be noticed. This *prodromal period* (from first noticeable or subtle changes in behaviour eg social withdrawal, loss of interest, lability of mood, impairment of cognitive functioning, to first appearance of psychotic symptoms) may last as long as 2 years. As the illness progresses, however, the symptoms become more obvious. The person develops peculiar behaviour, begins talking nonsensically and experiences unusual perceptions. This is the beginning of psychosis.

Subsequently there is an *active phase* which is the period of florid psychotic symptoms, which after treatment will resolve into a *residual phase* where the acute psychotic symptoms decrease in severity (although there may sometimes be persistence of psychotic symptoms). This is consistent with the widely held belief of the phasic structure to the experience of schizophrenia, depending on three factors: time, disability and symptom severity. Wykes *et al.*(1998) proposed that a time sequence is a useful differentiation, from an initial prodromal stage through to remission or a residual state (see Fig. 1).

From repeated relapses or exacerbations, patients accrue increasing morbidity in the form of residual or persistent symptoms, often resulting in further deterioration of their level of functioning. A small proportion will remain chronically and severely psychotic. With time, there is usually a shift in the symptoms whereby positive symptoms which have dominated the early course of the illness, give way to more negative symptoms.

Fig. 1 Phases of psychotic disorders (from Wykes, Tarrier & Lewis, 1998)

However, Warner (1994) has questioned the notion that deterioration in schizophrenia is a steadily progressive affair. Long-term follow-up studies of first episode samples (Eaton et al, 1995) suggest that such deterioration has been over-emphasised. The view that significant deterioration in clinical and occupational functioning is associated with schizophrenia (McGlashan, 1988) has been found to be neither homogeneous nor exclusive to the diagnosis of schizophrenia (Bleuler, 1978; Johnstone et al, 1986). Deterioration, if it occurs, usually does so in the early years, with relatively stable impairment after 5 to 10 years of the illness. Patients have been observed to reach a plateau of psychopathology and disability early in the course of their illness (Bleuler, 1978; Carpenter & Strauss, 1991). Thara et al (1994) followed a first-episode cohort monthly for 10 years and found very little attrition rate.

The first onset of a psychotic episode may result in a loss of self-esteem and self-confidence and issues associated with the stigma of mental illness. Co-morbidity may set in, particularly depressive symptoms which may lead to suicide, a known risk for people with schizophrenia (Johnson, 1981). These co-morbid conditions together with the underlying deficits of the schizophrenic illness itself and adverse social circumstances can produce secondary social disability handicaps (Wing, 1992). The early onset of the disorder causes the person with schizophrenia to miss out on the normal education process, development of social skills or start of a career, thus adversely affecting the functioning and future of the person. This social decline in the life of the person can lead to an overall downward course of the illness.

Epidemiologic studies in Europe and North America have shown that schizophrenia is more prevalent in lower than in higher socioeconomic classes. While some have argued that adverse or stressful living conditions increase the risk of onset of schizophrenia, others have contended that disproportionate numbers of people suffering from schizophrenia are to be found among the poor, in inner city areas, and among some immigrant populations because of "drift" rather than "stress". Dohrenwend et al (1992) have concluded that social drift rather than stress explains the increased prevalence of schizophrenia in the lower socioeconomic strata.

In 1979, a World Health Organization team published the results of a two-year follow-up study of people diagnosed as suffering from schizophrenia in nine countries. Researchers were surprised by the enormous variation in outcome; they found that sufferers in low-income countries did better than those in Europe and North America (World Health Organization, 1979). These results were startling because schizophrenia was generally considered a chronic illness of the lower socioeconomic status groups and undeveloped countries, with severe, persisting symptoms leading to an almost certain decline over time. The World Health Organization launched a second study that used more rigorous diagnostic criteria. The results, though less striking, were basically similar; symptoms of schizophrenia occur in all cultures at approximately the same prevalence and those in developing countries had better outcome that those in developed countries (Jablensky et al, 1992).

Aetiology

No single or definite cause of schizophrenia has been identified but several theories about the causes of schizophrenia have been put forward. Rose (1994) has proposed that the aetiology of the illness can be divided into three areas: predisposing factors, precipitating factors and maintaining factors.

Predisposing factors

The observation in epidemiologic studies that schizophrenia is differentially distributed in certain populations has led to the identification of three predisposing or risk factors: genetic characteristics, gestational and birth complications, and winter births (Carpenter & Buchanan, 1994).

Genetic factors

The evidence of genetic vulnerability to schizophrenia is strong; the risk for a first-degree relative is 10 per cent, and the risk for the offspring if both parents are afflicted is 46.3%; the rate of concordance is 14% for dizygotic twins and 38-50% for monozygotic twins (Gottesman & Shields, 1982). Studies of adoptees have also confirmed the strong influence of genetic factors in schizophrenia; there is an increased prevalence of schizophrenia-related disorders in biologic relatives compared to adoptive relatives (Straube & Oades, 1992a; Kendler, 1988). The lack of full concordance in monozygotic twins is a clear indication that non-genetic factors must also be involved in the development of schizophrenia in people with a genetic vulnerability to the

disorder (Straube & Oades, 1992b). However, investigations have so far not identified the specific genes involved nor the mechanism of this genetic inheritance (Carpenter & Buchanan, 1994).

Gestational and birth complications

Patients with schizophrenia have been observed to have an increased prevalence of obstetric and gestational complications (Lewis & Murray, 1987). There has also been findings of increased risk of schizophrenia among the offspring of women exposed to an influenza epidemic during the sixth or seventh month of their pregnancy (Mednick et al, 1988; Barr et at,1990; Sham et al, 1992) although findings to the contrary have also been reported (Torrey et al, 1992; Crow & Done, 1992). There seems suggestive but not decisive evidence for these immune and viral theories of schizophrenia, but they remain influential because they involve some plausible prenatal causative factors (Waltrip et al, 1990; Kaufmann & Ziegler, 1988). It has been suggested that these complications could have caused injuries to the developing brain regions of the foetus. An alternative explanation, however, suggests that genetic factors predispose the foetus to gestational complications.

Maternal starvation in the first trimester has also been associated with an increased risk of schizophrenia in the offspring (Susser & Lin, 1992); exposure to toxins and radiation during pregnancy that might induce mutation has also been suggested.

Winter births

The findings that many people suffering from schizophrenia are born in late winter and early spring, and relatively less in summer and autumn have been consistently replicated (Torrey et al, 1990). The various theories put forward for this "season of birth effect" include exposure to some viral infection. Numerous studies have examined the association of certain influenza epidemics and the occurrence of schizophrenia among those whose mothers had possibly been exposed. Other studies have proposed that it is the anti-bodies produced by mothers and not exposure to the virus per se that are responsible (Wright et al, 1993). The virus could have caused subtle damage to the foetal brain to produce pathological changes over many years after birth. Coupled with a genetic vulnerability, a virus could predispose the person to schizophrenia.

Precipitating factors

Investigators have suggested that the interaction of psychosocial stresses and a vulnerability to schizophrenia can precipitate the condition (Rosenthal, 1970; Zubin & Spring, 1977; Leff & Vaughn, 1985; Tienari et al, 1991). Such psychosocial theories of causation are, however, difficult to evaluate scientifically. The nature of the stress often seems to be non-specific but two-thirds of patients with acute schizophrenia have experienced a stressful event independent of the illness 3 weeks preceding the onset (Brown & Birley, 1968). Some of the events known to have precipitated the illness are pregnancy,

bereavement, surgery or physical illness, family conflict and major losses or changes in life.

The extent to which environmental circumstances influence the onset and course of schizophrenia is difficult to ascertain scientifically but there is now considerable interest in this area of causation.

Maintaining factors

Adverse social or family circumstances may maintain the illness by maintaining stress, or by depriving the patient of access to help. These may be in the form of unemployment and financial problems, social isolation, overcritical or overinvolved families with high expressed emotion (EE). There is evidence that the relapse rate is significantly higher in a patient with a family that tends to make hostile and critical comments about him (Brown et al, 1972; Vaughn & Leff, 1976). Other studies have found that attributions of blame directed at persons with schizophrenia by their relatives are associated with high levels of expressed emotion (Brewin, 1994; Brewin et al, 1991). This suggests that aspects of family communication affects both the course and outcome of the illness. However, there are a few studies which have shown some evidence that EE was beginning to lose favour as biological approaches have taken greater hold in schizophrenia research and family members are also up in arms against the 'blame-the-family' ideology (for example, McLean, 1990).

The idea of EE may be differently perceived by patients from other cultures. The concept of EE was developed as a research measure based on

British studies examining the relationship of family life to relapse in schizophrenia (Brown et al, 1972; Vaughn & Leff, 1976). By combining subjective assessments of criticism and emotional involvement in one or more family members, it was used as a global predictor of the likelihood of relapse. Birchwood & Jackson (2001) has, however, cautioned that EE is a measure of relatives' behaviour during interviews, and not of their behaviour in real life. Moreover, interpretations of criticism and emotional overinvolvement can be very subjective, especially in different cultures. For example, something that is regarded as criticism and emotional overinvolvement by an Englishman, may be considered the norm in an Asian culture. Members of Asian families are generally more emotionally involved with each other, sometimes to an extent that may be considered intrusive by their Western counterparts. Asian parents are generally more authoritarian; "criticisms" may not be construed as criticisms but as advice or as gestures of concern. Thus, when relatives of schizophrenic patients in an Asian culture show what they consider "normal concern" for the patient, this may be construed as high EE by Western mental health carers or even by local but Western-trained mental health carers. Hence, there may be cultural differences in the perception of EE. Bebbington & Kuipers (1994), however, have reported that EE has been shown to be a robust predictor of relapse across diverse cultures. A recent study by Ng et al (2001), for example, found that the predictive validity of EE is applicable to Hong Kong Chinese patients.

Recent developments to aid understanding of aetiology

Various different aetiological factors of schizophrenia involving biological and psychosocial approaches have been discussed and these may act as predisposing, triggering, or functionally-modulating factors. It now seems evident that schizophrenia is not a single entity but a heterogeneous disorder and part of a spectrum (Crow, 1986); its aetiology lies within the complex interaction of biological, psychological and social factors. The influence of biological factors has been further elucidated by studies of the structure and functioning of the brains of schizophrenic patients.

Technological advances have permitted more direct exploration of the brain than had previously been possible. Structural and functional imaging and postmortem studies are providing converging evidence of the involvement of specific brain regions in schizophrenia. Most imaging studies have confirmed increased ventricular size (particularly frontal and temporal horns) in a proportion of patients. Positron-emission tomography (PET) and single photon emission computerised tomography (SPECT) have enabled accurate studies of regional cerebral blood flow and these have demonstrated decreased activity in the frontal lobes in patients with schizophrenia, particularly during the performance of tasks that are associated with the activity of the frontal lobes. These highly sophisticated advances in technology have led to the development of theories about the pathophysiology of schizophrenia based on neuropathologic observations, ideas about the relations between the brain and behaviour, and knowledge of the pharmacologic actions of neuroleptic medications.

Since the 1960s, considerable research has been done on the role of cerebral neurotransmitters in schizophrenia. One of the predominant theories of schizophrenia was the dopamine hypothesis, which postulates that the disorder is caused by a functional hyperactivity in the dopamine system. Davis et al (1991) have reviewed the role of dopamine in schizophrenia and have concluded that the dopamine hypothesis, despite being criticized extensively over the years, still provides the most enduring explanation of the biochemical pathophysiology of schizophrenia. Basically, it has been suggested that an overactivity of the dopamine system in the meso-limbic pathway causes the experience of psychotic symptoms. Classical antipsychotics like haloperidol block these dopamine receptors, reducing the dopaminergic activity, thereby reducing positive psychotic symptoms. These classical antipsychotics have been shown to be generally ineffective in treating the negative symptoms of schizophrenia. Moreover, blocking certain sites from dopamine activity can cause extrapyramidal side-effects and elevate negative symptoms.

The dopamine hypothesis, however, could not account for the observation that despite extensive dopamine blockade, antipsychotic medications are not always effective and other hypotheses involving other neurotransmitters like serotonin, glutamate and g-aminobutyric acid (GABA) have been advanced.

Such theories offer an insight into the pathophysiology of the illness and an explanation of the action and therapeutic properties of drugs used in the treatment. Despite all such sophisticated methods of investigation and seemingly convincing hypotheses, there are still many problems and short-

comings in interpreting the results and explanations are still rife with problems. The biochemical changes, for example, may be a result of treatment or they may be due to some aspect of the illness itself.

Treatment in schizophrenia

Effective treatment in the management of schizophrenia can make an important difference in the course and outcome of the illness. The treatment often concentrates on the alleviation of symptoms, prevention or reduction of the rate of relapse, and social and occupational rehabilitation of the patient (Carpenter & Buchanan, 1994). Within a biopsychosocial model, the general consensus is that an holistic approach incorporating pharmacotherapy, psychosocial therapies and rehabilitation is essential to treating schizophrenia effectively.

In a meta-analysis of the literature on outcome in schizophrenia through the twentieth century, Hegarty et al (1994) found that there was a surge in favourable outcome between the 1920s and 1970s. These gains have been attributed to new treatments (Odegard, 1957; Wing, 1966), particularly neuroleptics since the 1950s (Davis, 1975; Wyatt, 1991), and an increased emphasis on family and community interventions since the 1960s (Leff et al, 1982). They found a decline since the 1970s and concluded that reverting to the narrower diagnostic criteria has had a consistently less favourable impact on outcome. This meta-analysis, however, had several limitations, one of which is that it considered only biological treatments without attempting to assess

potentially important advances in psychosocial and community-based aspects of comprehensive care (Leff et al, 1982; Hogarty et al, 1991; Stein & Test, 1976).

Antipsychotic medication is the mainstay of treatment, and eliminating or reducing the disruptive positive symptoms allows a patient to gain further benefit from psychosocial interventions. Until recently, the most commonly prescribed medication were the typical antipsychotics or the "older generation" antipsychotics. These older generation drugs have the tendency to cause a myriad of unpleasant and sometimes very disturbing extrapyramidal side-effects. These include parkinsonism which comprises tremors, rigidity and bradykinesia (lack of movements or slowing of movements), dystonia (spasm of certain muscle groups which, when involving the ocular muscles, result in oculogyric crisis) and akathisia (an inner and motor restlessness which has been reported to be very distressing). Other side-effects are postural hypotension, dry mouth, blurred vision, constipation and weight gain. One of the most severe side-effects is tardive dyskinesia (TD), an involuntary abnormal movement disorder which develops, if at all, usually after a period of exposure to antipsychotic medication. All these side-effects can cause patients to be non-compliant with the medication.

The adverse side-effects of the typical antipsychotics have triggered off the development of newer generation or atypical antipsychotics that give rise to very much less side-effects. The label of atypicality applies to a low propensity to cause extrapyramidal side-effects and possibly a lower risk of TD. In terms of their efficacy in treating the positive symptoms of schizophrenia, they have been

shown to be as effective as the typical antipsychotics but they cause less side-effects (Geddes et al, 2000; Kapur & Remington, 2000). These side-effects seem to be less disturbing, thus reducing non-compliance with medication.

Non-compliance is often an obstacle for maintenance treatment and the commonly ascribed reasons for this are the denial of illness from lack of insight and the distress from emergent side-effects. Besides these reasons, other causes for non-compliance include cultural and religious beliefs that the symptoms are not due to an illness but the result of some supernatural intervention, or due to the inherent flaws in the character of the person. These will be discussed in detail in the following chapters.

Early intervention in schizophrenia

Jackson and Birchwood (1996) and Birchwood et al (1997) have stressed the importance of early intervention in the treatment of schizophrenia. Previous approaches have focused on a "cautious rehabilitation and containment" model, dealing mainly with patients with a long-term history of schizophrenia, or on a community-based treatment of acute phases with lesser emphasis on long-term needs (Reynolds & Hoult, 1985). But Birchwood et al (1994a) have strongly advocated that a more balanced and integrated approach, preventive in nature, with emphasis on earlier detection and intensive intervention would lead to better outcomes. This would entail a shift in focus to early psychosis and the first episode, as they believe that the early phase of schizophrenia has a potentially formative effect in biological, psychological and social terms, on the future course

of the illness. They proposed a new "paradigm of care" in the treatment of schizophrenia focusing, as key elements, on the series of events/changes (transitional processes) prior to the onset of the psychosis, early detection and treatment, and the nature of treatment at the first episode and during the first five years of the illness.

Although, intervention at the "at risk" stage to pre-empt the first onset of psychosis may seem attractive, they warned that caution should be exercised as there are various ethical, logical, feasibility and economic factors to be considered. The danger of inappropriately labelling people and prescribing antipsychotic treatment can be very real (Birchwood & Macmillan, 1993). But creating awareness among general practitioners, being vigilant for tell-tale signs, providing easy access to mental health services can all help reduce delay in receiving effective treatment. This delay, or treatment lag, can adversely affect the course and prognosis of schizophrenia. Johnstone et al (1986) and Loebel et al (1992) have demonstrated a strong connection between treatment lag and the early course of schizophrenia; duration of untreated psychosis was closely related to relapse rate, time to remission and degree of remission. Delay in neuroleptic treatment has also been linked with treatment resistance (Wyatt, 1991). These findings all implicate the duration of untreated psychosis as detrimental to the outcome of the schizophrenic illness, causing secondary difficulties in social, educational and vocational development.

Carpenter & Buchanan (1994) have confirmed that pharmacotherapy has been found to be of greater effect during the early and mid-course phase of the

illness and that early episodes are more responsive to treatment. The management of schizophrenia, however, does not stop at treating the acute symptoms because at least 50 per cent of the patients who have had an acute episode will be left with some degree of disability. This may be in the form of residual symptoms and personal, occupational or social problems. The main goals of rehabilitation are to arrest any further deterioration, to assist the patient to return to his best possible level of functioning and to reduce the possibility of relapse.

Other approaches to complement the usual pharmocotherapy and rehabilitation are family intervention (Kavanagh, 1992), prophylactic low-dose maintenance medication (McEvoy et al, 1991) and cognitive therapy (Drury & Birchwood, 1994). Above all these interventions, Birchwood & Tarrier (1994) have argued that the central feature should be the "blame-free acceptance of illness, together with the encouragement of a sense of mastery over illness through education and inculcating strategies of control". However, Frank & Gunderson (1990) have stressed that to enable the patient to cope with the illness without being "engulfed" in the chronic patient role, an "ongoing supportive therapeutic relationship" would be essential.

Outcome in schizophrenia

Outcome in schizophrenia has been said to be a complex phenomenon and the ability of diagnosis to predict a specific outcome has been overstated (Strauss & Carpenter, 1972). The measurement of outcome is fraught with

difficulties because of the multidimensional spectrum of factors that influence it (Jablensky et al, 1992).

The outcome of schizophrenia can be measured in many ways, and is likely to be heterogeneous within each of these many dimensions. Outcome may be seen in terms of psychopathology, quality of life, social adjustment and function, or service use and overall economic costs. Measurements of outcome may be in terms of psychopathology, relapses, rehospitalizations, community tenure, social and occupational functioning.

Outcome can be altered, often dramatically, by a range of interventions, including conventional drug treatment (Dixon et al, 1995), social and family treatment (Lehman, 1995; Dixon & Lehman, 1995), and psychological interventions (Haddock, Bentall & Slade, 1996; Drury & Birchwood, 1994). Other factors that can alter the course and outcome of schizophrenia are non-compliance with medication and psychiatric treatment. Duration of untreated illness also has a significant impact.

Various prognostic factors in schizophrenia have been consistently identified and confirmed in several studies (Wykes et al, 1998). Some of these factors have been known to reliably predict outcome which can be measured in different ways. Premorbid functioning has been found to be a good predictor of outcome – if the person has had good adjustment premorbidly with normal personality, IQ, occupational and social functioning, it is likely that he would have a better prognosis and in all measures of outcome. Being older at onset of the illness, being female and married with an absence of family history of

schizophrenia and the presence of affective disorder in the family are all good prognostic variables of outcome measures. When the initial presentation is acute and recent, with florid positive symptoms, perplexity, presence of affective features and with no blunting of affect, prognosis for psychopathology, relapses and time as inpatient is better. Positive symptoms are well-controlled when the person is treated on antipsychotics. Measures of outcome, particularly relapse and readmission are more positive when it is a first psychotic episode and when the illness is in its early stages. Social functioning is better when negative symptoms are absent. Studies have shown that the environment also plays a major role in outcome; patients in developing countries fare better than those in developed countries and patients living in a family environment with low expressed emotion are less likely to relapse. Using illicit drugs or abusing alcohol affect outcome adversely; a positive attitude towards medication and good compliance with treatment results in better outcome. These prognostic indicators are useful when selecting the types of assessment measures of outcome.

Cultural issues in schizophrenia

Kleinman (1978) has proposed that people use explanatory models to make sense of their illnesses. These models involve cultural perspectives which incorporate beliefs concerning the aetiology of the illness, its course and its symptoms (Kleinman 1978, 1980; Littlewood 1990).

Kleinman & Cohen (1997) have indicted psychiatry for ignoring the importance of such "soft" variables as culture and socioeconomic status in an attempt to raise its status to that of a "hard" science, at par with that of other medical disciplines. They commented that in searching for signs that are culturally independent and thus more closely linked to the biological basis of an illness, psychiatric researchers have discounted the uniqueness of symptoms found in a particular culture. Schizophrenia and other mental disorders are on the rise, especially in developing countries but much has gone undetected and untreated because of this neglect of cultural factors. They stressed that "the need to establish cultural variation as a pillar of mental health studies comes from the empirical reality that distress, disease and treatment - however biological their roots - are experienced in the context of cultural and social processes that make symptoms and outcomes different". They postulated that a perspective that better explains the interplay between the socioeconomic, cultural and biological aspects of mental illness would be an essential requirement and a challenge to psychiatry.

Culture, health beliefs and compliance

The course and outcome of an illness depends to a large extent on the compliance of the patient with the prescribed treatment regime. This in turn is influenced by his own perception of the illness, his beliefs about the causes of the illness and also by his perception of the effectiveness of the treatment. The Health Belief Model (Rosenstock, 1966) was used to examine compliance with

depot antipsychotic medication in a sample of patients with schizophrenia in South Wales (Budd et al, 1996). They found that perceived severity of the illness, susceptibility to the illness, and benefits of the medication were related to compliance. However, insight knowledge and health locus of control were found not to be related to compliance. They attributed this lack of correlation to the differences between the concept of insight as reflected in David's (1990) insight scale and the Health Belief Model's constructs.

Basically, the Health Belief Model suggests that for a person to act either to prevent or to cure a given disease, there must be (1) a perception that the disease is of 'at least moderate severity'; (2) a perception that he is personally susceptible, vulnerable or already affected by that disease; (3) a belief that there are specific benefits in taking the given action i.e. the disease will be effectively prevented or cured; and (4) an absence of any major barriers e.g. cost, inconvenience, pain, embarrassment, impeding his taking that action (Rosenstock, 1974).

Quah (1985), in testing the applicability of the Health Behaviour Model in different cultural settings, investigated preventive health behaviour in the multi-ethnic society of Singapore. Significant differences in preventive behaviour were found among the three main ethnic groups - the Chinese, Malays and Indians - despite the fact that they are citizens of the same nation and share a basic social, economic and political environment. She argued that their respective cultural and religious beliefs and practices represent a significant determinant of the pattern of preventive health behaviour followed by each group. She

concluded that the explanatory power of the Health Behaviour Model weakens considerably when it is tested in different cultures and among different ethnic groups. Because this cultural dimension has been overlooked, the inclusion of three variables in future applications of the Health Belief Model was recommended and these were: ethnicity, gender and religious affiliation.

Ethnicity

The term 'ethnicity' has been debated upon by various authors who have examined the way it has been used. 'Ethnicity' is derived from a Greek word meaning a 'people or a tribe'. Marmot (1989) and Last (1988) have suggested that it implies one or more of the following: shared origins or social background; shared culture and traditions that are distinctive, maintained between generations, and lead to a sense of identity and group; and a common language or religious tradition. Numerous authors are of the consensus that ethnic boundaries are fluid, changeable and imprecise (Leech, 1989; Fernando, 1991; Bhopal et al, 1991; McKenzie & Crowcroft, 1994). Culture can blur ethnic distinctions even though ethnic groups may remain distinct while becoming different from the original migrant group.

Various authors have also emphasized the importance of distinguishing between race, ethnicity and culture (McKenzie & Crowcroft, 1994; Senior & Bhopal, 1994; Singh, 1997). These terms have been said to have several and sometimes ambiguous meanings which may overlap with political concepts of nationality and immigration status (Singh, 1997). Basically, culture involves all

shared characteristics of a society such as traditions, language, social roles, etc that are transmitted across generations by non-biological means. An ethnic group refers to a group of persons who share language, customs and a recent common ancestry. Ethnicity encompasses both biological and non-biological differences between groups. These include physical appearance, self-identification, sense of belonging, values, attitudes, language, behaviour and knowledge of ethnic group history (Singh, 1997). There is, therefore, a complex inter-relationship between race, culture and ethnicity. Race is socially perceived as permanent and genetically determined; culture is considered changeable and with assimilation; and ethnicity is considered partially changeable (Fernando, 1991).

McKenzie and Crowcroft (1994) have commented that race has often be mistakenly used to mean ethnicity or culture even though race is thought to be biologically determined and ethnicity and culture are ideas derived from social theory. Sheldon and Parker (1992) have observed that this mistake makes research findings difficult to compare, and results in a host of inappropriate hypotheses and discussions. They cited the common mistake of producing biological explanations when the variable used, for example, ethnicity or culture, is socially determined. Senior & Bhopal (1994) have reiterated that biological and genetic factors to not underlie ethnicity or culture and hence have strongly reminded that ethnicity should not be used synonymously with race. Marmot 1989) has said that the definition of ethnicity must be made explicit before research can be done while Singh (1997) has advised researchers to justify the

use of ethnic categories in their work by explaining why they chose a particular frame of reference.

Schizophrenia in a multi-cultural and multi-religious society

Epidemiological and anthropological studies in various developing countries have shown that cultural beliefs and practices influence the course and outcome of schizophrenia to a large extent. A multi-cultural and multi-religious country like Singapore would also have its own set of cultural and religious beliefs about causes of illness. Singapore is in the transition from a developing to a developed nation and with a multi-ethnic and multi-religious population. Research on schizophrenia in Singapore to date is scant. The few studies in Singapore and South-East Asia have indicated that a large proportion of patients do believe that the symptoms they are experiencing are due to supernatural causes and seemed to have much faith in traditional healers.

In a study investigating the help-seeking behaviour of Chinese psychiatric patients in Singapore, Kua et al (1993) found that more than a third of the sample (36%) or their relatives had consulted a traditional healer or a temple medium before seeking help from the hospital. Twenty-two percent of the patients attributed the cause of their illness to spirit possession. This "possession" was believed to be due to a spell that had been cast upon them or to having accidentally offended a spirit, or "stepped on something dirty"[1]. Kua et al concluded that some of the patients who did not believe in spirit possession had

[1] This is a cultural belief amongst the Chinese and Malays and refers to having literally touched or stepped on an evil spirit or its abode.

also consulted traditional healers. An example they cited was that among the Christian patients, 16% of these Christian patients who theoretically did not believe in the Taoist beliefs in spirit possession had sought help from a Taoist temple medium. As help is often initiated by family elders, the Taoist parents of a Christian patient may prefer to consult a traditional healer rather than seek help from a general practitioner or mental health professional.

The fear of stigmatization in seeking medical help is always present and hospitalization in a mental institution would be avoided as far as possible. While on medical treatment, many patients would also continue with herbal medicine prescribed by the traditional healer, taking ritualistic cleansing baths and wearing talisman to ward off evil spirits (Gwee, 1969). Kua et al (1993) seem to be in agreement with Razali et al (1996) in that they believe that an understanding of the belief system of the patient would enhance the effectiveness of the medical treatment and certainly would not jeopardize the therapeutic relationship.

An earlier study conducted in Singapore by Tan et al (1981) showed that 50% of the Chinese patients in their sample had consulted traditional healers prior to hospitalization compared to the 36% in Kua et al's (1993) sample. Thus, it is not unreasonable to conclude that as urbanization and Western influences gradually permeates a particular society, the influence of traditional and folk beliefs gradually decreases. Even so, it is very likely that some remnants of such beliefs would be retained.

Aims of this thesis

Previous studies in Singapore on patients with schizophrenia have not examined the factors that have affected the outcome of the illness. This thesis aims primarily to investigate the effects of ethnicity and beliefs about the causes of schizophrenia on the course and illness outcome in a cohort of patients in Singapore. The beliefs of the patients' relatives will also be examined. Patients' beliefs are influenced to a large extent by the prevailing beliefs of the community in which they live. Hence the second aim is to elicit the beliefs of the lay population. Based on these lay beliefs, a Beliefs Questionnaire will be developed which will be used in the main study; the aim is to develop a culturally relevant and practical questionnaire that can be used to assess patients' and caregivers' beliefs about the causes of their illness in routine clinical practice. As course and outcome are also affected by various other factors besides ethnicity and beliefs, another aim is to examine the influence of these other factors concurrently.

Past studies investigating the help-seeking behaviours of psychiatric patients in Singapore have inquired into beliefs about causes of their illness, but the relationship between these beliefs and outcome of the schizophrenic illness has not been examined. It is hypothesized that beliefs do have an impact on the course and outcome of the illness. Such findings have important implications on the treatment and management of patients. Just as Gillespie and Bradley (1988) concluded that when the doctor and the diabetic patient negotiate and agree on causal attributions of the problems, compliance is likely to improve. So it is very likely that when psychiatrists and mental health carers understand and respect

the beliefs of their patients and caregivers, compliance and cooperation is also likely to ensue. This is not to suggest that mental health professionals must follow the same cultural or religious beliefs as their patients but, as Razali et al (1996) and Kua et al (1993) have advocated, knowledge and awareness can contribute significantly to the therapeutic relationship and hence to cooperation and compliance with psychiatric treatment.

Chapter 2

Singapore: a historical perspective of cultural & religious practices

Introduction

It is necessary to have some knowledge about the history and practices of the different cultures and religions in Singapore and their perception about mental illness in order to understand their differing help-seeking behaviours and health beliefs. This chapter provides some knowledge and insight into the origins of the cultural and religious beliefs of the Chinese and the Malays in Singapore - the two main ethnic groups under study in this thesis. A general background to the cultural and religious practices of these two groups and a brief historical perception of mental illness across civilization will be discussed.

Singapore and its cultural background

Singapore is a cosmopolitan country in South-East Asia with a population of 3.2 million comprising the Chinese (77.4%), Malays (14.2%), Indians (7.2%) and people of other ethnic groups (1.2%) (Singapore Yearbook 2000). It consists of the main island of Singapore, about 650 square kilometers in size, and about 54 smaller ones, located at the southern tip of the Malayan Peninsular, approximately 140 kilometers north of the Equator. To the south of Singapore is the Indonesian archipelago.

Singapore has hardly any natural resources; its economic growth depends mainly on its human resources. Its success as a thriving business and financial centre, with a per capita income, second after Japan, can be attributed mainly to its sound economic policies coupled with a strict, paternalistic government of impeccable integrity. It is a very strictly regulated society which has resulted in very industrious and disciplined citizens, mostly living in high density urban areas. It is very likely that people living in such an economic climate are bound to experience the demands concomitant with such a situation.

Historical accounts reveal that immigrants from China and the surrounding countries in search of employment started to converge in Singapore from the early 14th century. In 1819, Sir Stamford Raffles established a trading post in Singapore and by the late 19th century, Singapore came under British colonial rule. Singapore rapidly grew, by virtue of its strategic position to become the most important commercial centre and naval base in South-East Asia. It fell to the Japanese in 1942, and after liberation become first a British Crown Colony in 1946 and then a self-governing state within the Commonwealth in 1959. Federated with Malaysia in 1963, it declared full independence two years later and remains a world trade and financial centre.

The establishment of British rule and the consequent new trade opportunities marked the beginning of a long period of continuous Chinese immigration. By the mid-19th century, Chinese immigration was well-organized, most of them coming from the two southern coastal provinces of Fukien and

Kwangtung (Murphy, 1959) and bringing with them their religious and folklore beliefs of the southern variant (Sakai, 1993).

By the end of the 19th century Singapore was experiencing unprecedented prosperity which attracted immigrants from around the region. Besides the Chinese, who made up nearly three-quarters of the population, there were sizeable numbers of Peninsular Malays, Sumatrans, Javanese, Bugis and Boyanese from neighbouring Indonesian islands, Indians and Ceylonese from South Asia, Arabs, Jews, Eurasians and Europeans. Racial, religious and cultural affinity among the immigrants facilitated inter-marriage with the early inhabitants of Singapore - mainly Malays and Chinese emigrants of the older Dutch settlement of Malacca.

According to the 2000 census (Singapore Yearbook 2000), 85 per cent of Singaporeans profess to some religious faith or spiritual belief. Buddhist and Taoist formed 53.9 per cent of the resident population aged 15 years and above. Islam (14.9 per cent), Christianity (12.9 per cent) and Hinduism (3.3 per cent) are the other main religions. The early Chinese, Indian and Malay immigrants brought with them their religious beliefs, values, practices and culture. They set up temples and mosques as places of worship and as focal points for festivals, ceremonies and teachings of their religion. Christian missionaries evangelized among the inhabitants and established churches and educational centres.

The typical early Chinese in Singapore tended to be individualistic and very conscious of family and self, striving mainly for his own family farm or business, avoiding involvement in wider social and community activities.

Friendships were made carefully, with benefits measured against obligations, and with a strong sense of responsibility to one's family. Emotional relationships and expressions tend to be restricted both within and outside the family structure and there is to this day, an emphasis on formal respect for elders and on propriety of conduct. Such loyalty to the family pervades the religious consciousness and great industriousness of the Chinese moral system. They brought with them the ancient Chinese concept of "face", remnants of which still remain today; anything that would make them "lose face" was either denied or disguised. Among the ancestral worshippers, many of the Taoist festivals are still carried out to worship the different deities e.g. the festival of the Nine Emperor Gods or the Feast of the Hungry Ghosts to appease and honour departed ancestors.

One of the most notable gods worshipped by the Chinese in Singapore and Malaysia is called *Ta-po-kung* or the "local god of the soil", a practice brought by the immigrants from China (Sakai, 1993). These gods were worshipped for peace, prosperity, fruitful harvests, health and prosperous business. Tablets inscribed with characters of names of deities or spirits were placed in houses on the altar for the mortuary tablets of ancestors. They were also found at landing points of rivers, in plantations, cemeteries, tin mines, buildings and wherever there was perceived to be a spirit. People would erect an altar with a tablet for the deity and pray for the safety of the workers at construction sites. Sometimes it is also linked to the Malay folk deity called *Datok* and they are worshipped together. "*Datok*" is the Malay equivalent of the

Chinese term *Ta-po-kung* and there is even a 'marriage' between the Malay *Datok* and the Chinese *Ta-po-kung* when the two merge and are worshipped as *Datok Kung* usually at the foot of a big tree, or may be an anthill or even several stones. This 'marriage' is a reflection of the mixture of Chinese and Malay local beliefs.

The early Malays of Singapore, however, found their social security more within their village units rather than in the family. Having originated from varying localities, they could not be treated as having a single culture. But over the years, there seems to have emerged a Singaporean Malay culture that has crowded out immigrant influences through gradual acceptance and integration. It is said to be a gentle, easy-going culture, very different from the quarrelsome or intensely religious cultures of some other similar groups around the region (Djamour, 1955). Amongst the Malays in Singapore today, most highly valued is the rich emotional relationship between parent and child, while material wealth, success and aggressive entrepreneurship were of lesser importance. Almost all are Muslims and they are very "loyal to their religion but without fanaticism" (Murphy, 1959). Like the Muslims of the earlier era, their religion is also influenced to a large extent by many traditional beliefs in the supernatural and in magic, so that being bewitched by someone is still a common explanation for sickness.

Common to both the Chinese and Malays in Singapore, the help of the traditional healer is often sought as first-line treatment. The healer is consulted to diagnose or identify the offending spirit and to exorcise the spirit. Only when

the healer fails and the symptoms persist is the general medical practitioner or mental health professional consulted. Singapore is still in the transitional shift from a developing to a developed country. There have been inevitable social and economic changes in the wake of modernization and development. Much of the present generation of Chinese and Malay Singaporeans have gone through the British-based educational system and have inevitably been subjected to the influence of Western ideas and practices. Such changes and influences are likely to alter traditional values and beliefs and affect societal attitudes.

Mental illness across time and societies

Insanity has afflicted humanity throughout history (Howells, 1991). Insanity is an intriguing but daunting subject, and 'madness' seems to exert an irresistible fascination for most people. Madness was essentially a vague notion in the past, and there were many ways of describing the mentally deranged. An assessment of insanity in any society is intimately dependent on its social context, perhaps far more than for any other 'illness'. The inadequacy of the term 'illness' itself, in dealing with insanity in the past, suggests that the modern tendency to label all unusual behaviour medically is restrictive, if not erroneous. The cultural determination that certain behaviour was madness does not mean, however, that serious mental illness did not exist in the past. There is much evidence to show that there was recognition in ancient civilization of psychic disturbances as *diseases* of the mind. Even so, the doctor had no monopoly in diagnosing an individual's extraordinary actions. The medical view was only one

possibility in a complex, highly personal negotiation of the status of the afflicted. Individual circumstances were crucial to such judgement. It was largely a social and not a clinical decision.

The borderline between madness and sanity is, and has always been, blurred. Yet, one is tempted to define madness as any form of persistent behaviour that is judged by a social group at a specific time and place to be abnormal. Certain ideas or patterns of behaviour may be offensive or even criminal, but offensiveness and criminality, although undesirable, are part of normality. And when one hears of a crime that is so bizarre that it seems to transcend normality, one is prone to say that the individual is "mad" or "crazy". Insanity can only exist against the background of an accepted standard of normal behaviour. The definition of insanity must somehow leave room for individual eccentricity.

Then (in the days of ancient civilization), as now, a consensus about madness depended generally on the degree to which an individual's behaviour was disturbed, on the nature of the disturbance, and on the attitudes of other people toward his condition. After all, a person is disturbed, deranged, or distracted only in relationship to others. Culturally defined categories of extraordinary behaviour clearly shaped the afflicted person's version of his inner experience and others' interpretation of his actions. The care, neglect, or abuse of the insane was largely determined by the interplay of such perceptions.

The assumption about the universality of "normal" and "abnormal" behaviour was first challenged in the early 1930s with the writings of cultural

anthropologists as Sapir, Hallowell and Benedict. Hallowell (1934) stated that the cross-cultural investigator must,

> ". . . . have an intimate knowledge of the culture as a whole, he must also be aware of the normal range of individual behaviour within the cultural pattern and likewise understand what the people themselves consider to be extreme deviations from this norm. In short, he must develop a standard of normality with reference to the culture itself, as a means of controlling an uncritical application of the criteria that he brings with him from our civilization." (Hallowell 1934:2)

Martin Katz and his colleagues have led in the field of empirical studies about the nature of "normality" and "abnormality" (eg Katz et al, 1969, 1978) with different cultural groups residing in Hawaii. Marsella (1980) have generated indigenous conceptions of problems, causes and treatments for different cultural groups in Hawaii through the use of cognitive research methods. They reported that these conceptions can be used in clinics by practitioners to evaluate patients from different ethnic backgrounds within the context of their own culture. Other researchers, using a similar approach, have arrived at indigenous conceptions in Samoa (Clement, 1974), Malaysia (Resner and Hartog, 1970), Africa (Edgerton, 1966) and for the Apache Indians (Boyer, 1964). Marsella (1980) concluded that one can no longer impose an arbitrary standard of 'normality' and 'abnormality';

he reiterated the observations of the early cultural anthropologists and stressed the importance of considering 'normality' and abnormality' within a cultural context.

Mental illness across civilizations

Close scrutiny of the world history of psychiatry will reveal that there is much common ground across cultures over time concerning the beliefs about causes of mental illness (or what was previously termed "insanity"). Looking at the development of world psychiatry, it is possible to discern a series of eras, each dominated by a theme. There seems to be a predictable direction of the world-wide movement through the eras. This movement has direction, but cannot necessarily be claimed to be uniformly progressive if one defines progress to be increasing knowledge and improving practice. There can be regression and recession. Five eras have been identified (Howells, 1975) of which the first has been termed *primitive*, followed by *rational, religious, somatic* and the fifth and last stage being *harmonization*. This pattern may be different for different areas; some regions like Europe have passed through all five stages whilst other areas have missed out a stage here and there. Each stage would be influenced by geographical, ecological, cultural, economic and political factors. Colonization could bring rapid, harsh and sometimes harmful changes or stultify progress. There could be regression at any point in the movement. After a high period, there may be a return to the first and *primitive* phase before a resurgence of progress, an example being the Arab countries. All the stages could coexist

and remnants of all can be found today. In a few areas there has been no significant movement away from the *primitive* stage, for example, in underdeveloped parts of the world.

Hallucinations, delusions and semblance of trance states and spirit possession have been in existence since time immemorial. During the paleolithic and neolithic age, up to 1500 BC, there is evidence in many areas throughout the world suggesting a strong influence of animistic religion, worship of animals, trees and snakes, reverence for deified souls of departed ancestors, and belief in the supernatural. Disease, physical or mental, to them, was an act of revenge by the spirit of the dead, or of possession by demons, spirits, goblins, gods, goddesses, supernatural influences, etc. They may be associated with natural forces as sea, sun, rain, wind, storm and thunder. They may be found in the natural environment, in mountains, streams, lakes, ponds, etc. This *primitive* stage was in the past found in all areas of the world, for example, it applied in ancient India, in the pre-Islamic period in Arab countries, and in Europe; it can still be found in many areas in India, parts of Europe, regions of Asia and South America. Remedy lay in religious techniques like prayers, incantations, divination, sacrifices, amulets and talismans, which took precedence over any form of medical practices of that time.

As the eras progressed and knowledge increased, practices became more advanced and organized. Such systematization occurred consistently across contemporary civilizations throughout various parts of the world - the Egyptian, Mesopotamian, Indian, Chinese, Greek, Roman, Cretan. The ancient Greeks

attributed such symptoms as hallucinations and delusions to an imbalance of the humoral system; the Galenic tradition (so named after the 2nd century Greek writer, Galen) had a large influence on Islamic medicine in the ancient and medieval Middle East; the Indians, according to the Ayurvedic concepts believed that these symptoms were due to a disequilibrium of the "humoral trinity" (Das Gupta, 1952) whilst the Chinese attributed the symptoms to a disturbance of the balance and harmony within the person.

After a period of superstitions, the *rational* period strived for a theoretical explanation for everything. The current status of medicine and psychiatry seems to have returned to this era but meanwhile there still remains an apparent struggle for *harmonization*, an attempt to integrate the various contributory factors.

It appears that many views and practices are held in common when cross comparisons are made between societies of the world but a review of traditional health beliefs will reveal that there is a cultural specificity to them. This suggests that most, if not all, health beliefs of a particular culture regarding mental illness are deeply rooted in their core culture and have evolved along with the historical development of that culture. To understand the health beliefs of that culture, an adequate understanding of its cultural background is essential. In spite of the cultural specificity, there appear to be striking similarities when comparing traditional health beliefs about mental illness in different societies. Psychotic conditions, for example, are categorized similarly in societies with very different cultural roots. Although different terminologies have been used, the description

of hysterical symptoms in traditional Chinese medical texts is very similar to that of Hippocrates. Temkin (1973) has also pointed out that the Chinese humoral theory is comparable to that of the Indian as well as the Greek version as described by Galen.

Traditional Chinese medicine and its influence on mental illness

The central theme of Chinese culture is the well-being of the individual as an integrated organism within the context of his natural, cosmological and social environments. This is based on the two dominant philosophical traditions of Taoism and Confucianism. Chinese beliefs about physical and mental illness are, therefore, central to the Chinese culture. The two most central concepts of traditional Chinese medicine are concerned with microcosm-macrocosm correspondences and dynamic balancing or harmony (Nan-Tung Chinese Medical School, 1959; Agren, 1977). The early Taoists, being devoted naturalists, saw the human being as part of the natural world; what was observed in the macrocosm would have its equivalent in the microcosm. Hence, anything that happened in the larger natural and social milieu would also have its effect on the smaller realm of the individual human being. The Chinese have developed an elaborate system to describe these correspondences and, based on this framework, the three main principles of traditional Chinese medicine have evolved: the *yin-yang* system, the *Wu-Hsing* or the Five Evolutive Phases (comprising the five fundamental elements wood, water, fire, metal, earth) and the *ching-lo* (meridian) system. Within the traditional Chinese medical system,

illnesses are discussed in terms of the balance and harmony of these three principles together with the circulation of vital energy, or *ch'i*, in the individual. Balance here is not static but dynamic following the fundamental rule of the universe.

The aetiology of diseases is classified into three categories: six seasonal influences, seven internal emotions and situational conditions like trauma and fatigue. The seven emotions originating from within the individual were joy, grief, fear, anger, love, hatred, and desire; excesses of these emotions were deemed to cause illnesses (Cheung, 1995). The six seasonal influences, considered as originating externally, comprised "wind" (*feng*), "coldness" (*han*), "hotness" (*shu*), "dampness" (*shih*), "dryness" (*tsao*) and "fire" (*huo*). These concepts are closely related to the weather and reminiscent of Galen's humoral theory, except for "wind" and "fire". The latter two concepts were more abstract and generic in nature and had wider applications. "Wind" referred to any pathogenic forces that were fast-acting and therefore potentially more harmful. It was used symbolically to denote any diseases with acute onset and of unpredictable nature; it provided the rapid, actively invading quality to the disease. "Fire" was considered a more passive factor that aggravated any conditions caused by the other factors. It is almost impossible to avoid these "meteorologic" factors since they are always present in the environment; the important thing was to avoid sudden exposure and changes in the surroundings, and also to adjust physiologically and psychologically in advance or in response to these changes to pre-empt their adverse effects.

These Chinese medical systems were recorded in its classics, the most well-known of which is the *Huang-ti nei-ching* - the "Yellow Emperor's Classic of Internal Medicine" (third to fifth century BC). Though not formally scientific in modern terms, they represented an empirical and rational healing tradition that was objective and therapeutically effective (Tseng 1973; Porkert, 1974; Agren, 1975).

One salient aspect of traditional Chinese medicine in relation to psychiatry is its reluctance to differentiate between physiological and psychological functions, not because the Chinese lack psychological awareness but because of their inclination towards extreme somatization (Tseng, 1975; Kleinman 1980). However, to reduce this extreme somatization, they placed high emphasis on moderation and inhibition of affective expression. These are encouraged in the teachings of Taoism and Confucianism to maintain balance within the individual and harmony in familial and other social relationships. There was no separate attention on mental illnesses, particularly minor ones; rather they were integrated with other physical problems. Thus, depression, for example, was not regarded as a psychological condition although the emotional component was recognized. The symptoms would be attributed to disturbances of *ch'i* caused by excessive sadness hurting the "lung" and excessive thinking damaging the stomach and spleen, resulting in loss of appetite.

The term *tien-k'uang* was used to refer to the problems of "craziness" (or later referred to as the functional psychoses); *tien* was used for psychotics who presented as passive and apathetic, while *k'uang* was used to describe the more

agitated and excited. *Feng* or "wind" was the colloquial term used to signify "craziness", reflecting the basic characteristics of "wind" as discussed earlier and signifying the disturbances of the macrocosm-microcosm balance. This term was first used in the T'ang dynasty in combination with the two presentations, *feng-tien* and *feng-k'uang*, to describe the two categories of "craziness". The clinical description of these two conditions seems compatible with the description of modern-day schizophrenia.

Chinese folk healing beliefs and their influence on mental illness

Consistent with the Chinese core culture, folk healing theories and beliefs are rooted in Taoist ideas, with strong emphasis on macrocosm-microcosm and dynamic balance. But unlike the earlier Taoist tradition, later Taoism (from the late Han dynasty) focused less on the natural and more on the supernatural interpretations of the environment. With the syncretic integration of Taoism and Buddhism, shamanism survived and this combination resulted in the supernatural tradition of Chinese folk beliefs and practices which included spirit possession (by ghosts and fox-fairies), spirit loss, divination and sorcery. The earlier tradition, however, was retained and developed into the practices of fortune-telling, astrology, physiognomy and geomancy in which the basic Taoist ideas of *yin-yang*, Five Evolutive Phases and *ch'i* still applied.

Shamanism, which originated from the animistic belief of the early Chinese, is the most popular folk healing practice amongst many Chinese, even to this day. The shaman, also called a *tang-ki* (Kleinman, 1975) becomes

possessed by a supernatural power when in a trance. Through him, the client can consult with the supernatural being, which may be a god, ghost or ancestor, for advice on dealing with life problems.

The Chinese have been haunted for centuries by beliefs in spirits of "hungry" ghosts which were usually unhappy, unsettled wandering spirits of those who died an "unnecessary" death or who were denied ancestor worship. Such folk beliefs of spirit possession as the cause of mental illness seem to have infiltrated the originally naturalistic medical theories, and even began appearing in major medical textbooks (Tseng, 1973). This further reinforced the Chinese people's beliefs of demon possession as a cause of "craziness" and abnormal behaviours. Believers often arm themselves with amulets obtained from Taoist temples to protect themselves from attack by these demons.

The Chinese seem to recognize the hereditary basis of mental illness, contrary to Veith's (1975) assertion but, consistent with their well-known pragmatism, they have tried not to focus on the reality and stigma attached to it. Instead they either disguise the problem under a more socially accepted label, as a physical illness or idiosyncrasy, or they just attempt to deny its existence. This is very much in line with the Chinese concept of not wanting to "lose face". This would invariably present as one of the biggest barriers in providing effective mental health care, especially in the early stages.

Traditional Islamic beliefs and their influence on mental illness

Just like the Chinese, Islamic beliefs and practices are steeped in its core culture. In this case, however, religion was the dominant factor that influenced the early Muslim society. According to Dols (1992), the Muslim society was a social organization dominated not only by the Muslim religion but by a "tenacious adherence to established values and practices". Such resilient cultural characteristics came about in the seventh to tenth centuries AD, when Muslim Arabs ruled the central Middle East. These social values continued to dominate during the pre-modern period in countries where Islam became the principal religion. Much of this pattern of social life has persisted until recent times despite inevitable influences of outside sources. The view of insanity in Islamic law is very similar to one of the three principal interpretations of mental illness as suggested by Dols (1992) - the "intelligibility" model that interprets mental illness as "deprivation of rationality or the breaking of constitutive rules of reason". In relation to this model, Dols (1977), has said that the 'mentally ill' are deemed to have "lost not their bodily health, nor their virtue but their *reason*: their conduct simply does not make sense".

The methods of curing the insane ranged widely from the purely naturalistic to the blatantly supernatural. Dols (1992) has grouped them into three categories: medicine, religion and magic. Under medicine, healing relies primarily on physical treatments. Religious healing encapsulates the belief that health or illness ultimately depended on the Divine and that curing is the voluntary response of God to acts of supplication and religious ritual. Magic also

embodies the belief in the supernatural causation of health and illness but the difference is that the supernatural could be coerced by mystical techniques to attain the desired results. There seems to be a common theme from these three modes of healing linking Christian and Muslim curative beliefs and practices in the Middle East.

Dols (1992) has shown how the medical notion of insanity in Greek medicine, primarily the second-century writings of Galen, has influenced Islamic medicine, which is epitomized by the encyclopaedic medical work of Ibn Sina. After Galen's death his works were disseminated far and wide. The study primarily of selected works of Galen and the implementations of his theory of medicine, centering on the notion of humoral pathology, became the core professional medicine for centuries in the Middle East. Through Syrian, and then Arabic translations of Galen's texts, doctors in Islamic society had available to them every work of Galen. Thus, traditional Islamic medicine was heavily influenced by Greek medicine through Galen's works.

The key concept of Galenism was the humoral theory, and very much like the macrocosm-microcosm correspondences and dynamic balance of traditional Chinese medicine, so were illnesses in the Greek and Islamic traditions caused by humoral imbalance. This humoral imbalance was in turn caused by natural factors within or outside the body. Factors outside the body were the four elements of nature - air, earth, fire and water - and the four humours produced within the body - blood, black bile, yellow bile and phlegm - constituted the factors within the body. Like the basic principles of traditional Chinese medicine,

the humoral theory, derived from the notion of balance or moderation in all things, was more than a medical principle; it has been said to be part of a pervasive world-view (Dols, 1992).

As Islamic society in the Middle East gradually assimilated Greek medicine, it also absorbed some of the beliefs and practices of supernatural healing of the pagans, the Jews and Christians in the early Christian era of the ancient Hebrew society. The immediate cause of mental disorders was often attributed to the work of evil spirits and the cure, religious exorcism. Just as there were prophets in ancient Hebrew society who appeared and behaved in quite eccentric ways, so were there Islamic *sufis* who pursued a mystic life and claimed to achieve union with God. There were similarities in the beliefs in a common God of Abraham as all-powerful and all-good, one who would restore the believer to health when he was ill. The religious teachings of Islam were embodied in their holy book, the Qur'an which was the equivalent of the Christian's holy book, the Bible. Jesus was considered by the Muslims as just one of their prophets but Muhammad, was for the Muslims the greatest of all their prophets. Even though he disclaimed any miraculous powers including healing, devout Muslims eventually attributed to him the ability to intercede with God and to work wonders. Thus began the teachings of Prophetic medicine in the seventh century AD in western Arabia.

Prophetic medicine

Prophetic medicine was instruction on matters of health and illness based on the exemplary life of Muhammad; as the prophet of God, Muhammad had access to the ultimate source of all human well-being and healing. Prophetic medicine emphasized divine causation and, consequently religious healing. Galenic medicine was used to explain both the physical working-out of God's actions in the human body and to supplement religious practices with relevant therapeutics. Prophetic medicine also perpetuated some of the indigenous practices and beliefs of western Arabia and recognized popular perceptions about disease and illness. The afflicted or their families could, therefore, turn to approved supernatural remedies and rituals, which drew particularly for madness, on a broad substratum of native beliefs. Because of the prestige of the Prophet, this medical 'system' was an important guide for Muslims when confronted with disease and sickness, and it also suggests what were normative Muslim attitudes and modes of behaviour.

Prophetic medicine reveals the blending of these three elements: the folk medicine of the Arabian bedouin, Galenic concepts that had become common parlance (such as humours, temperaments, and qualities) and the overarching principle of divine causation. It represented a type of healing that was compatible with Muslim beliefs and cognizant of popular perceptions of illness.

Magical and supernatural practices

Related to Prophetic medicine was the widespread practice of magic, especially exorcism of the possessed; both curative methods sought God's direct intervention. Prophetic medicine worked by the employment of customary religious rituals, such as prayer and fasting, and remedies commended or condoned by the Prophet. The magician used various techniques to request for God's aid against the *jinn* or spirits. In theory, Islam did not prohibit the use of appropriate magical methods, i.e. those consistent with Muslim belief, by devout Muslims for benevolent purposes. Thus, the legitimate magician was an instrument of God's power; observant of Muslim law, he performed supernatural feats, especially to communicate with and control the unruly *jinn*, by invoking God or making oaths in His name. On the other hand, sorcery - the use of magic to cause evil - was clearly condemned by Islam. There is abundant evidence of the use of therapeutic magic in the survival of countless numbers of amulets and talismans.

The fact that Muhammad is not depicted as an exorcist in the Qur'an or later traditions does not mean that his followers were free of the belief in spirits and their possession of human beings. In fact, the existence of the *jinn*, or spirits, was a deeply rooted notion among the pagan Arabs, that was perpetuated by Islam and the *jinn* figured prominently in the Qur'an. The *jinn* are closely associated with and are sometimes identified with the demons and 'satans' (*shayatin*) in the Qur'an. Muslims have adhered to the belief in *jinn* simply because it is mentioned in the Qur'an, even though the *jinn* never appear as a

strictly Islamic concept but, rather, as a pagan belief. The *jinn*, both good and bad, became an integral part of the Islamic world-view.

Muslim theology always admitted the use of *jinn* in magic, but the legality of such magic has varied considerably. These elusive spirits were clearly acknowledged and the existence of the *jinn* gave free rein to the imagination of later Muslims. The main principle, however, is that Islam is superior to magic, that "magic was not bad, but Islam was far better" (Dols, 1992).

Both kinds of *jinn* could cause calamities, but the good or believing *jinn* were thought to inflict them as a divine blessing, trial, or punishment for an individual's sin or moral offence (Stephan, 1925). Spirit possession usually meant the intrusion of evil spirits that invaded the entire body of their victim; they might mislead or misguide the possessed, and damage or destroy them. Most characteristically, the demons drove men mad.

Muslim practices and the Qur'an

Thus, there were a number of possible responses by a devout Muslim to illness and to insanity in particular. A Muslim might turn to a practitioner of Galenic medicine. He might trust in God entirely and take no active measures to ameliorate his condition, or he could adopt a more active religious life, including prayer and sacrifice. He might resort to the saints or the supernatural healing akin to that of the Christians or Jews. And he might turn to Prophetic medicine or magic. Madness was also perceived by some people in the Islamic society as a condition that did not need to be treated, healed or exorcised.

Paradoxically, it was sometimes attributed to "excessive love in the otherwise sane, the wisdom of the fool, or the divine love of the mystic" (Dols, 1977).

The Qur'an very clearly expresses the principle that no guilt should be attached to human illness or infirmity, and no stigma should be attached to the diseased. It was believed that celestial punishment is usually reserved for disbelievers or heretics. Another important theme in the Qur'an in relation to illness is that mankind is not by nature sinful, as in Christianity. Man may certainly sin, but there is no equivalent of the Christian doctrine of Original Sin in the Qur'an. The playing out of the view that everything is in the hands of God would lead inevitably to passive resignation to illness and diseases, which were inexplicably sent by God. It was generally believed that God causes illness as a trial or blessing for the believer. If the trial is endured with patience, the effect is chastening, expiatory, even meritorious, and some diseases, such as plague, may bestow the benefits of martyrdom, that is, an assured place in paradise (Dols, 1977). In Islam, human nature may be characterized as that of a "rational animal", enobled by reason but vulnerable to bestial passion - and insanity was the removal of the noble, essential part of humanity. The Qur'an also does not inculcate a dichotomy between the mind and the body. Therefore, in principle, a Muslim could not be physically sick and spiritually healthy or vice versa.

Islamic society's attitude towards mental illness

Insanity in Muslim society was considered a condition that incapacitated an individual from leading an active social life; it bestowed both a privileged and

a debased social status. The concern of the law and the state was not with healing or honouring the insane but with protecting the madman's property and society. Legally, the insane possessed no rights but neither did they have any obligations. Like a child, the madman was outside the law but was safeguarded by it; Islamic law strongly reinforced the customary care of the insane man by his family and the preservation of his property. If the insane were dangerous, either to themselves, to others, or to the state, they might be put into prison or a hospital. Thus, Islamic society's perception of insanity seems to take a humanitarian approach.

Summary of cultural issues

Similar remedies, similar rituals and practices are found in many different regions. It raises the question of what factors account for these similarities. Several explanations have been postulated, including the spread of knowledge through direct communication, through conquest or by travellers, or it may well be the result of cultural diffusion. Another explanation is a matter of common origin, that as man moved from one region to another, he carried his "primitive psychiatry" with him. Supernatural phenomena have also been used in different cultures in to explain and categorize mental illnesses, and similar supernatural treatment methods (eg shamanism, divination) are found in societies with greatly different cultural backgrounds and with no history of contact or diffusion.

Tseng (1973) and Westmeyer (1981) investigated this kind of comparison and came to the conclusion that the similarities in "folk psychiatry" among

different peoples in different historical times and cultures suggest that mental illness is a "universal human experience" and that there should be a common approach for understanding categorizing and explaining mental conditions. Lin (1981) has further suggested that to practise modern psychiatry in the different cultures, it is of utmost importance to have an adequate understanding of each culture's medical and folk religious beliefs and treatment approaches. He argued that this is essential not only because indigenous health beliefs produce cultural barriers to the practice of Western-style psychiatry in a Chinese setting for example, but more importantly, through these concepts and categorizations, Chinese culture continues to influence the way symptoms are perceived, expressed and reacted to. He believed that "adequate understanding of these beliefs is the key to the indigenization of Western psychiatry in Chinese settings, and the successful planning and provision of culturally appropriate mental health services for Chinese patients". Such an approach would also logically apply to the practice of Western psychiatry in other cultural settings.

In the present day, contemporary beliefs about mental illness are likely to be a mixture of traditional and modern ideas because of the constant influence of the presiding social conditions and also because of the far-reaching effects and on-going process of modernization. Lin (1981) has suggested that knowledge of these contemporary beliefs would be of theoretical and clinical significance and aid in the understanding of illness and help-seeking behaviours, clinical communication and compliance.

Help-seeking behaviour of patients with schizophrenia in Singapore

The medical record of patients with schizophrenia who have been admitted to Woodbridge Hospital, the state mental hospital in Singapore, currently stands at approximately 24,800 (Woodbridge Hospital, 2000). Outpatients who have not required inpatient treatment for the last one year and seen at the Institute of Mental Health and its community psychiatric clinics numbered approximately 5,800 for the year 2000 (Tan et al, in press). It appears, therefore, that with a total population of 3.2 million, Singapore has its "fair share" of patients with schizophrenia (0.75 per 1000 population) based on the international prevalence rate of approximately 1%. It is estimated that there would 600 new cases of schizophrenia in Singapore annually.

The majority of these patients (up to 88% - Tan et al, in press) live with their families who are often highly influential in the patients' choice of treatment for their illness. Steeped in the age-old tradition and beliefs of their origins, many caregivers would bring their ill relatives for consultations with traditional healers as a first step towards seeking help. A recent study by Chong et al (in press) found that 24% of their sample had sought help from a traditional healer prior to contact with the psychiatric services. Earlier studies conducted in Singapore (Tan et al, 1981; Kua et al, 1993) revealed an even higher percentage (50% and 36% respectively) seeking help from traditional healers as a first-line treatment.

The Chinese have consulted shamans (or the *tang-ki*) in the belief that the patients' problems have been caused by evil spirit possession, spirit loss or sorcery. Others have sought help from traditional Chinese physicians for herbal potions or acupuncture to reinstate balance to the patient's *ying-yang* and/or

ching-lo systems. Yet other caregivers have been known to change the name of the patient as they believed that the Chinese characters of the patient's name contained too much of one of the five elements of the *Wu-Hsing* and hence caused "clashes" within the patient. Even Christian Chinese caregivers and patients have been shown to consult temple mediums despite their Christian faith (Kua et al, 1993). Some Chinese Christians have resorted to spiritual healings and exocisms by the priests and pastors of their churches.

Religious Malay caregivers would bring their mentally unwell relatives to seek blessings and cleansing from the *imam* (the Muslim "priest" of the mosque), through recitations from the Qur'an. Holy water would sometimes be given to be consumed or to be added into ritualistic cleansing baths with roots of certain plants together with Qur'an incantations. Other Malay caregivers who believed that the patient had inadvertently offended any of the *jinn* or *shayatin*, or who believed that a "wicked spell" had been cast upon the patient through black magic, would consult the *bomoh* (Malay traditional medicine man) for exorcism or for potions and rituals to negate these "spells". The numerous number of different places of worship in Singapore, especially Chinese and Indian temples, mosques and churches, the various traditional Chinese medicine and traditional Malay medicine men set-ups, provide adequately for this population of traditional help-seekers.

These consultations with traditional healers could spread over a period of months or even years. Only when the symptoms fail to recede or become exacerbated do caregivers, and sometimes the patients themselves, seek help

from psychiatric services. By this time, the patient could have been ill for many years. This was one of the findings of Chong et al (in press); it was established that, in a sample of patients presenting for the first time to Woodbridge Hospital, the duration of untreated psychosis (DUP) ranged from 0.1 to 336 months, with a mean of 32.6 (SD=59.8) months and a median of 12 months. They postulated that the DUP of these patients was longer than that reported in studies done in the West. In their study, they also confirmed that the attitudes and beliefs of family members played a crucial role in the patients' pathways to care.

Occasionally, the reason for delay in seeking psychiatric treatment rested not so much in traditional beliefs of humoral imbalance or spirit possession. For the Chinese, the cultural concept of "loss of face" would lead to denial of mental illness within the family. The Malays, believing that everything is in the hands of God, would passively resign themselves to the illness. In enduring the illness with patience and without complaint or human assistance, the devout Muslim believed that there is an assured place in paradise. These beliefs and convictions could have further contributed to a longer DUP.

The "revolving door" phenomenon appears to be very prevalent in Singapore. Even when patients are being treated at the Hospital, many of them continued to have greater confidence in and relied solely on the treatment by traditional healers. Some may continue to deny the illness or rest on their convictions. These patients, sometimes with the coercion of their caregivers, often defaulted treatment on discharge from the Hospital. After a period of time,

they relapse and are readmitted, often brought by the law for disruptive, violent or "abnormal" behaviour in the community.

In Singapore, with a population comprising different ethnic groups, there is a meeting of different cultures which must be recognised. For modern psychiatry to be accepted by the various ethnic groups, it is of utmost importance to have an adequate recognition, understanding and respect for the beliefs and practices of these groups in order to reduce the cultural barriers that inhibit its acceptance. Despite modernization and Westernization, the various studies conducted in Singapore have provided evidence that the local patient population and their caregivers are still very much influenced by their cultural and religious beliefs. In line with Lin's (1981) suggestion, this knowledge of the contemporary beliefs of the population would aid in understanding the illness and help-seeking behaviour of patients and their caregivers. An understanding of the cultural and religious beliefs of the various ethnic groups would have significant clinical implications in enhancing compliance with psychiatric treatment of the mentally ill.

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Chapter 3

Lay beliefs about causes of schizophrenia in Singapore

Introduction

The aim of the study described in this chapter is to examine the lay beliefs of the Singaporean population which is a multi-cultural and multi-religious. This represents a first step in understanding the different beliefs about mental illness that are likely to have a strong influence on patients' and relatives' attitudes and on their compliance with psychiatric treatment. The lay beliefs will also provide the basis for a culturally-relevant beliefs questionnaire to be administered to a cohort of patients with schizophrenia.

Theories of lay beliefs

Lay theories of causation are the prevalent beliefs that the lay population has about the causes of events such as illness. Furnham and Kuyken (1991) have stressed the importance of lay theories and beliefs; they should not be overlooked as they can provide clues into the cognitive and behavioural strategies people use when experiencing psychological and psychiatric problems. Such theories and beliefs also give an insight into the strategies of cure (Furnham & Henley, 1988). Brickman et al (1982) has pointed out that such knowledge can be incorporated into a broader model of helping and coping. Anthropologists, in their studies of the relationship between ethnicity and conceptions of mental distress, have shown how people from different cultures explain mental distress and how these "explanatory

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models of distress" influence causal attribution and presentation of a disorder as well as determining patterns of help-seeking (Kleinman, 1987; Helman, 1990). For good patient/healer communication, healers have emphasized the importance of understanding the beliefs of those suffering the mental distress (Kleinman, 1978; Tuckett and Williams, 1984; Greenfiled et al., 1987) and that "illness meaning" should be an integral consideration for diagnostic validity (Weiss, 1996).

Influence of cultural values on attitudes towards mental illness

The impact of social stigma is particularly prevalent in Asian societies where the concept of "face" plays a significant role. Though common amongst the Chinese, this concept is not a culture-specific phenomenon but has universal applicability (Ho, 1976). The Western sociologist, Goffman has defined the term "face" as "an image of self delineated in terms of approved social attributes" (Goffman, 1955). There is, however, significantly greater emphasis on this concept within the Chinese culture which is basically collectivistic in nature than in more individualistic egalitarian cultures (Redding & Ng, 1982; Bond & Hwang, 1986).

An important aspect of Chinese collectivism is that the family is usually perceived as a basic social unit. If there are any conflicts or shameful matters inside the family, they are deliberately handled as a "backstage" issue and not be brought to the "front of the stage" which will cause the family to "lose face" (Hwang, 1983). The erratic, socially unacceptable and abnormal behaviour of the mentally ill patient often brought extreme embarrassment, shame and guilt to the family members. As a "face saving" strategy, family members often resorted to denying or disguising the problem of mental illness. Even though neighbours and society may be

sympathetic to the afflicted person, there is a tendency of the Chinese to place blame and responsibility on the family or even on his ancestors for having done something wrong or immoral. The Malays are generally more tolerant and accepting of such afflictions, often attributing them to the "will of Allah", to fate or to the work of supernatural forces (Razali & Yahya, 1995).

Previous research

Various studies have shown that lay people tend to attribute the abnormal behaviours of schizophrenia to the effects of stress and to other psychosocial factors. In this respect there seems to be a large discrepancy between the beliefs of lay people and the traditional psychiatric teachings about the biomedical causes of schizophrenia (Furnham & Bower, 1992; Phillips et al, 2000). Moreover, explanatory models of common mental disorders tend to differ between developed and developing countries. There is far greater recognition in developed countries that mental disorders are disturbances in health and could benefit from some form of medical intervention (Patel, 2000). Developing countries, however, are far less likely to acknowledge a role for biomedical interventions (Patel, 1996).

Previous studies on Caucasian populations

Even in developed countries, however, preference for a psychosocial model of explanation may lead to a preference for psychological treatment, which emphasizes the importance of social support and reduction of stress, over psychotropic drug therapy. In a national survey to assess the Australian public's beliefs about causes and risk factors for mental disorders, Jorm et al (1997) found

that the main causes cited for schizophrenia were social environmental factors and weakness of character. This is likely to adversely affect compliance with a treatment regime based on the medical model.

This was evident in a study by Angermeyer and Matschinger (1994), who explored the lay population's beliefs about the causes of schizophrenia in the eastern and western parts of Germany shortly after reunification in 1990. They drew up a catalogue of postulated causes of mental disorders and placed them into 6 categories: biological factors, psychosocial stress, intrapsychic factors (defined as factors reflecting personal characteristics of the individual), supernatural powers, the effects of socialization, and the state of society. They devised three items for each of these categories and presented this list of 18 items to a random sample of the population, who were asked to rate their beliefs on a 5-point Likert scale. Table 3.1 shows the categories and items of the questionnaire Angermeyer and Matschinger constructed for their study.

Their results showed that the most frequently reported cause was psychosocial stress in the form of stressful life events and the stress of interpersonal relationship difficulties. Second in order of frequency was biological factors followed by intrapsychic factors. Ranked fourth was the influences of socialization like lack of parental affection or overprotective parents. The decay of traditional values as seen in the state of society was ranked fifth while only a tiny minority endorsed supernatural causes which was ranked sixth.

Table 3.1

Categories & items of Angemeyer & Matschinger's questionnaire for lay beliefs about causes of schizophrenia

Category	Items
Psychosocial stress	Difficulties in partner or family relationship Work difficulties Stressful life event
Biological Factors	Brain disease Heredity Constitutional weakness
Intrapsychic factors	Lack of will power Expecting too much of oneself Unconscious conflict
Socialization	Grown up in a broken home Lack of parental affection Overprotective parents
State of Society	Loss of traditional values Decay of natural ways of life Exploitation
Supernatural powers	Will of God Witchcraft, possession by evil spirits Signs of the Zodiac

In a later paper, Matschinger and Angermeyer (1996) demonstrated a new methodological approach in studying the lay beliefs about the causes of schizophrenia. Instead of their 1994 quantitative method using factor analyses, they presented the multiple unidimensional unfolding method to establish a latent dimension of the order of preference regarding the causes offered as an explanation for the development of mental disorders.

Angermeyer and Matschinger (1994) also explored the lay population's beliefs about methods of treating schizophrenia. They drew up a catalogue of eight treatment approaches and presented it together with the causal beliefs questionnaire. The sample of the lay population under study was asked to indicate how much they favoured or opposed each of the methods on a 5-point Likert scale. Table 3.2 shows the list of treatment methods they proposed.

A vast majority of the German lay sample endorsed self-help techniques and in particular "talking it over with someone trusted". Psychotherapy was also highly recommended followed by relaxation techniques and alternative methods such as nature cures and mediation/yoga. Psychopharmachotherapy was least often recommended.

Table 3.2
Categories & items of Angemeyer & Matschinger's (1994) questionnaire for lay belief about treatment for schizophrenia

Category	Items
Self-help	1. relaxing 2. pulling oneself together 3. talking it over with someone trusted
Alternative therapies	1. relaxation techniques/autogenic training 2. meditation or yoga 3. nature cures
Recognized methods of therapy	1. psychotherapy 2. drug treatment

Previous studies on non-Caucasian populations

Whilst these studies have explored the beliefs of Caucasian populations, there have also been studies investigating such beliefs in Middle Eastern, Far Eastern and South-East Asian populations. In the Middle East, 60 major caregivers of patients with schizophrenia and attending the out-patient clinic of a psychiatric department of a general hospital in Ankara, Turkey, were interviewed by Karanci (1995). Besides being asked about the difficulties they faced as caregivers, they were asked about their beliefs about the causes of the patients' illness. Despite prolonged exposure to the psychiatric services as caregivers, 50% of their causal beliefs concerned psychosocial factors and 28% concerned patients' characteristics.

In investigating the beliefs of the Chinese in China, Phillips interviewed family members of patients with schizophrenia during the provision of family counselling and the administration of the Camberwell Family Interview (Phillips & Xiong, 1995). Forty-five folk explanations were generated during these interviews which were grouped into six causal classes. They developed the Causal Models Questionnaire for Schizophrenia (CMQS) based on these explanations. In a later study using the CMQS, Phillips et al (2000) reported the causes of schizophrenia as perceived by another cohort of 245 family members of 135 schizophrenic patients admitted consecutively to two hospitals in the districts of Suzhou and Siping, China. The respondents identified more than 84% of the causes of schizophrenia as social, interpersonal and psychological problems; biological and spiritual causes accounted for less than 12% of the overall causes. The most commonly endorsed individual folk causes were "stress", "personality problems"

and "conflicts in non-family relationships". "Brain disease" as a cause of their relative's illness was not endorsed by any of the respondents; alcohol or drug misuse as a cause was identified for only two of the patients. Only four respondents reported changing their beliefs after contact with psychiatrists.

In another study on the Chinese population in Hong Kong, Chung et al (1997) compared patients', relatives' and the general public's perception of psychotic symptoms. Although the general public's opinion was assessed, the authors admitted that the 43 participants from their "general public" group were not randomly selected from the general population but were volunteers who attended an open community event on mental health education and these happened to be mainly relatively younger females. Thus, their opinions may have been biased and may not truly represent that of the general population. Moreover, their beliefs about the causes of the psychotic symptoms as illustrated by a case vignette were assessed using a multiple choice format rather than being spontaneously elicited.

Within Southeast Asia, Razali and Yahya (1995) studied the compliance with psychiatric treatment of a cohort of 225 Malay patients with schizophrenia in a rural state in Malaysia and emphasized the importance of understanding the patients' cultural background. His earlier study (Razali, 1989) showed that relatives believed that schizophrenia was caused by supernatural powers and the right person to treat the illness was the *bomoh* (the indigenous Malay medicine-man or traditional healer). These relatives discouraged the patients from taking their medication and attending follow-up appointments with psychiatrists because they had more faith in the *bomoh.* The results of this study showed that more than 80% of patients with mental disorders had consulted a *bomoh* prior to seeking psychiatric treatment.

Bomohs have been known to advise patients to stop taking the medication prescribed by psychiatric clinics and to continue solely with their traditional medicine.

In Singapore, Kua et al (1993) studied the illness behaviour of 100 Chinese psychiatric patients referred consecutively to the psychiatric unit of a general hospital. These patients were asked what they thought was the cause of their illness and whether they had consulted traditional healers or Chinese temple mediums before seeking help from the hospital. The results showed that 31% of the female patients felt they had been possessed by a spirit or that a charm had been cast on them, whilst only 11% of the men believed in a supernatural causation of their illness; 36% of the sample had sought treatment from traditional healers. There were no effects of duration of illness, gender and religious affiliation vis-a-vis consultation with traditional healers but significantly more women than men believed that their illness was due to supernatural causes.

Although all these studies have been done on non-Western populations, most of them have looked at the beliefs of either relatives of patients or of patients themselves. Asking patients and their relatives who have been exposed to psychiatric services or have been involved in lengthy family psychoeducational programmes would preclude generalisability of the results, as noted by Robinson (1996). Only Chung et al's (1997) study assessed the general public's beliefs but their respondents had an interest in mental health and came from a restricted demographic group. Moreover, their beliefs were not elicited spontaneously but through questionnaires and multiple-choice formats that limited respondents' own explanatory models and perceptions. Even in Phillips et al's study where in-depth

interviews were used to elicit folk explanations of schizophrenia, the relatives were interviewed individually by the author in a clinical setting, which may have limited or affected spontaneity and free expression.

The present study

The present study examined the beliefs of representatives from various sectors of the lay population in Singapore who have had little or no direct exposure to mental illness, which makes it different from previous studies that were mainly concerned with relatives or patients.

The different ethnic groups that make up the population in Singapore have varying cultural, religious and traditional practices, as well as differing beliefs regarding health and illness. These beliefs and practices have been brought by their forefathers from their respective countries of origin and handed down to the present generation.

Singapore has undergone rapid development since the early 19th century when immigrants from China and the neighbouring Muslim countries settled in this island state. Inevitable social changes have taken place that have altered traditional beliefs and values within the community. Societal attitudes would have been affected by the British-based education system, the effects of British colonization and the introduction of Western ideas and practices. Beliefs and attitudes of one ethnic group could also have been influenced by those of another ethnic group. Despite Westernization, certain cultural and religious beliefs and practices have remained, especially with regard to illness and help-seeking behaviour, as the various studies have shown.

Quah (1985), in assessing the preventive health behaviour of a representative sample of the Singaporean population using the Health Belief Model (Rosenstock, 1966), showed that ethnicity, gender and religious affiliations played a significant role in influencing the lay population's beliefs and behaviour. Thus this

is further evidence that cultural factors still play a significant role especially when illnesses which carry with them any form of social stigma, for example, leprosy, tuberculosis and mental illness are concerned.

Given the diverse cultural background of the population in Singapore, knowledge about each ethnic group's specific beliefs about the causes of the abnormal behaviour of patients with schizophrenia would help in providing a better understanding of patients and relatives using mental health services.

This study explored the contemporary beliefs of a lay sample of the two main ethnic groups in Singapore – the Chinese and the Malays - with regard to their beliefs about the causes of behaviours that are considered bizarre and abnormal in the community. These behaviours represented some of the symptoms of schizophrenia as described in DSM-IV. This was basically a qualitative exploratory study that used small group discussions to understand a range of beliefs of certain sections of the local Chinese and Malay lay population. Another aim of this study is to elicit lay beliefs that can provide the basis for a culturally relevant beliefs questionnaire be administered to a cohort of patients with schizophrenia.

Predictions

1. It is predicted that in contrast to Western countries, beliefs about supernatural causes would be more prevalent in a culture that places great emphasis on animistic and ancestral worship and practices. Angermeyer and Matschinger's (1994) system for the classification of beliefs was used so that a comparison of the data and results from this study can be made with those from Germany.

2. On the basis of cultural differences between the Chinese and Malays, it is predicted that the Chinese would make significantly more causal attributions to intrapsychic factors.

A methodological innovation in this study included the use of a semi-structured group discussion format to collect data. This was expected to encourage freer and more spontaneous expression of beliefs than would be possible with either individual interviews or multiple choice questionnaires.

The study also differed from previous work in systematically sampling respondents from different demographic groups, so that the influence on beliefs of ethnicity, gender, age, and education could all be assessed. Male and female participants were recruited from the local Chinese and Malay communities. They differed in their age and educational levels. The intention of such mixed groups was to sample the beliefs of a wide range of lay people in the population from different age and occupational groups.

METHOD

Sample

The sample consisted of 32 Chinese and 32 Malay respondents recruited from the lay population through various agencies like community clubs, education and social centres, retirees' clubs, factories and homes in the community. Organisers of the respective clubs and centres nominated members on an ad hoc basis one week before the date of discussion. They were told that a lady would like to "have a chat with them next week regarding their beliefs". Those who declined were replaced by the organiser. Anonymity was assured as some respondents were concerned about being quoted.

Malay participants were all Muslims while of the Chinese participants, 17 were Buddhists/Taoists, 11 Christians, and 4 freethinkers. In terms of occupation, the sample consisted of college students (10%), professional, skilled and semi-skilled workers which included teachers, engineers, civil servants and clerks, factory production operators, sales assistants, cooks (80%) and unskilled workers mainly labourers, hawkers and cleaners (10%). This ensured that as far as possible, the sample would have representatives from the various occupational sections of the population. This was fairly assured by the selection of the various organisations from which the participants were recruited. Mental health professionals and voluntary workers, caregivers of patients with schizophrenia and the patients themselves were excluded as participants.

Potential respondents were divided into two age groups: (1) between 20-49 years and (2) 50 years and above. They were also divided into 2 groups depending on their highest level of education attained: (1) 'O' level and above and (2) below 'O'

level. Quota sampling was employed to recruit groups of 4 respondents which included every combination of ethnicity (2 categories), sex (2 categories), age (2 categories), and educational level (2 categories) in a fully balanced design. This gave a total of 16 subgroups that were all homogeneous for ethnicity, sex, age, and education. These groups represented various sections of the Chinese and Malay lay population but the sample is not a representative sample of the Chinese and Malay lay population of Singapore.

Procedure

Rationale for composition of the small groups

Male and female participants were seen in separate groups because in an Asian society like Singapore, the historical male dominance still prevails to a large extent especially amongst the older generation. The Chinese social structure has traditionally been more male-centred and the typical pattern of power in the Chinese family was the husband/male-dominant type; females were expected to defer to males (Braun & Chao, 1978; Bond & Hwang, 1986). When seen separately, each group, especially the females, would likely be more spontaneous in their participation.

Groups were also homogeneous for age to separate the 'older generation' from the relatively 'younger generation'. There is often a tendency for the young to agree with or defer to elders when talking together, out of respect for the older person. This is due to the age-old Asian emphasis on filial piety and the hierarchical structure of the society. The older generation may have different values, outlook and opinions, partly because many are first generation immigrants and have

brought with them beliefs and customs from their country of origin. Younger people may be hesitant to speak up or reluctant to disagree with the views of the older generation.

Similarly, the rationale of having separating participants with different levels of education is once again because of the hierarchical nature of the Asian society where those who have had relatively less education tend to agree with or defer to those of relatively higher education. The 'O' level stage (or its equivalent) has been used as the 'dividing point' as it is often an important point in time when people decide whether or not to continue with their education.

Conduct of small group discussions

Semi-structured group discussions based on a modified version of the Mental Disorder Beliefs Schedule (Mallett, 1991), each lasting 30 minutes, were conducted by the investigator (and a co-facilitator when necessary). This semi-structured format (see Appendix 3.1) encouraged the participants to speak spontaneously, but at the same time allowed the investigator to direct the discussion discreetly. The investigator had a structured framework of topics to be covered but did not strictly implement this structure. Instead, the discussion would follow the flow of topics spontaneously brought up by the participants, using and building upon the terminology introduced by them. Prompts were given only when necessary to facilitate the discussion. Steps were taken to intervene discreetly when one participant appeared to be monopolising the discussion. This ensured that all participants contributed to the discussion. Prompts were also made to elicit responses when certain items in the structured framework were not being covered.

After a short introduction by the investigator of herself (and the co-facilitator when applicable), the purpose of the group discussion was explained to the four members of the group. A vignette (Appendix 3.2) describing a psychiatric case history was then presented by the investigator. The symptoms of the case satisfied some of the diagnostic criteria in DSM-IV for schizophrenia; the term "schizophrenia" was deliberately not mentioned in the vignette.

Members of the group were encouraged to talk about what they believed to be the causes of the symptoms described in the vignette and to freely express their personal beliefs and opinions about the possible causes of such behaviours. Words used to describe the behaviours were elicited from the group. Prompts were given by the investigator only when necessary to elicit further ideas and responses to items that they may have left out. Care was taken not to use the term "schizophrenia" unless spontaneously introduced by the group members.

Discussions with the Chinese sample were conducted in English, Mandarin and the different dialects as appropriate, and the Malay and/or English language was used as appropriate with the Malay sample. A co-facilitator was present at some of the discussion groups when it was anticipated that the investigator would not be conversant with the main language spoken (certain dialects), or certain cultural nuances. The Chinese co-facilitator was a colleague of the investigator and the Malay co-facilitator an undergraduate working as a research assistant during vacation. The co-facilitators were briefed on the semi-structured format and on their role during the discussions. The investigator remained the main facilitator for each group discussion.

Each discussion was audio-taped, translated and transcribed verbatim by the investigator from the languages and the various dialects into English. Back-translations and consultations, when necessary, were made with the co-facilitators. Statements that qualified as beliefs (according to the guidelines in Appendix 3.3) were extracted from the transcripts independently by the investigator and another independent rater (IR). Frequency counts of the statements were made. The investigator and IR then independently allocated these belief statements into six categories following Angermeyer and Matschinger's (1994) classification. These were (1) biological factors (disorders of the brain, constitutional weakness, heredity), (2) supernatural powers (black magic, "charms", possession by evil spirits, will of God), (3) psychosocial stress (difficulties in interpersonal relationships, work or study difficulties, stressful life events), (4) intrapsychic factors (factors attributed to the self eg lack of will power or strong personality, poor coping skills), and factors due to influences of (5) socialization (broken-home situation, lack of parental affection, overprotective parents) and (6) the state of society (decay of traditional values, indifference of the society, changes in attitude of society due to modernization).

RESULTS

Reliability

Belief statements extracted by both the investigator and the IR were compared for each group discussion. Percentage agreement was obtained by dividing the number of statements extracted by both the investigator and the IR by the total number of statements extracted by either of the two raters, and multiplying by 100. Across the 16 groups, percentage agreement ranged from 64% to 86%, with a mean of 78%. Each rater then independently to categorised the statements into the six categories following the guideline for categorisation given in Appendix 3.4. The inter-rater agreement on categorisation (kappa) ranged between 0.81 and 1, with a mean of 0.91.

Distribution of Belief Statements

The total number of belief statements made by the Chinese sample was 302, and by the Malays was 197. The distribution of the statements is shown in Table 3.3.

Chinese respondents identified psychosocial causes more frequently than any other category, followed by biological and intrapsychic causes. Malay respondents made causal statements mainly identifying biological factors and psychosocial factors. Compared to these major categories, attributions to supernatural causes were less common. Neither group made many mentions of the effects of socialisation or the state of society.

Table 3.3

Number and percentage of statements in each of the six categories and percentage allocated by each ethnic group

Category	Biological	Supernatural	Intrapsychic	Psychosocial	Socialization	Society	Total
No. of Statements	122	60	108	167	25	17	499
Percentage	24	12	22	34	5	3	100
Chinese %	18	10	28	34	7	3	100
Malay %	35	15	11	33	1	5	100

The number of statements extracted from the transcripts in each belief category could not be compared directly because participants differed in the total number of statements they made. Each participant's relative endorsement of each belief category was therefore calculated as a percentage of their total number of causal statements. This yielded six percentage scores for each participant corresponding to the six categories. Because the scores were found not to be normally distributed, a square root transformation was carried out. Each category score was then subjected to 4-way ANOVA with ethnic group, sex, age and level of education as the independent variables. Because the number of statements was very low in both the socialization and state of society categories, with many cells having scores of zero, these statements were not analyzed further. A summary of the results is presented in Table 3.4. Significant 3- and 4-way interactions were found only for the Supernatural category. It is possible that there may be other 3- and 4-way interactions in the other categories, but the low power made it unlikely for them to be detected.

Biological factors

There were no main effects of any of the independent variables, but there were two significant 2-way interactions. The interaction between education and ethnicity was accounted for by the more highly educated Malay participants making more of these causal statements (mean=177.97) than did the less educated Malays (mean=86.71) or the Chinese (higher educated mean=53.63, less educated mean=102.43). Interestingly, the subgroup of young higher educated Chinese respondents made fewest biological attributions (mean=20.35), which is surprising

because one would have expected them to be more exposed to recent scientific developments and to biological explanations.

In the significant ethnicity by sex interaction, the Malay male participants made significantly more attributions (mean=167.27) to biological causes than did the female Malay participants (mean=97.41) or the Chinese participants (Chinese male mean=67.58; Chinese female mean=88.48).

Supernatural factors

Attributions to supernatural causes were generally low across the sixteen groups (means ranging from 0 to 22.95) except for the younger Malay, less educated female participants (mean=61.60). The significant main effect of age and the lower-order interactions should be interpreted in the light of the significant 4-way interaction, accounted for by this particular group (younger Malay, less educated females) who dwelt mainly on supernatural beliefs during their discussion, citing and sharing many personal experiences and beliefs. The other Malay groups were less inclined to attribute causes to supernatural reasons because they said they preferred to accept such an illness as the "will of Allah"; many said that as Muslims they are not supposed to believe in black magic, "charms" or evil forces. Given the unexpectedly strong effect attributable to this one subgroup of Malay respondents, a discussion group was repeated with another group of similar respondents to see if similar results would be obtained. This is reported below.

Table 3.4

Effects of ethnicity, gender, sex, and age on causal beliefs

Category	Main effects	2-way interactions	3-way interactions	4-way interactions
Biological	NS	Education x Ethnicity (F = 22.03***) Ethnicity x sex (F = 4.87*)	NS	NS
Supernatural	Age (F = 7.23**) Education (F = 5.39*)	Education x Ethnicity (F = 12.23***) Ethnicity x sex (F = 9.08**)	Age x Education x Ethnicity (F = 5.20*)	(F = 7.05*)
Intrapsychic	Ethnicity (F=29.56***)	NS	NS	NS
Psychosocial	NS	NS	NS	NS

N.B. *** p < .001; ** p < .01; * p < .05; NS = not significant.

Intrapsychic beliefs

The only significant effect in this category was that of ethnicity. The Chinese made significantly more attributions (mean=29.29) to the person himself than did the Malay participants (mean=11.48). There were no significant interaction effects.

Psychosocial beliefs

These were quite evenly distributed across all the sixteen groups. There were no significant main or interaction effects of any of the independent variables.

Repeat Group Discussion

Four young Malay women who were in the lower educational grouping were recruited from a nearby industrial factory that made computer components. The group discussion was carried out in a similar manner. Belief statements were extracted and categorised by the investigator and the same IR using the same guidelines. The percentage agreement on extraction of statements was 75.5%, and the kappa coefficient for coding of statements into categories was 0.96. The percentage of statements falling into each of the six categories, both for the original group and the replication group, is shown in Table 3.5. Once again, the highest number of beliefs were in the supernatural category, followed by the psychosocial and biological categories.

Table 3.5

Causal statements made by young, less educated Malay women

Category	Biological	Supernatural	Intrapsychic	Psychosocial	Socialization	Society	Total
Original Sample							
No. of statements	2	12	2	3	0	0	19
Percentage	10.5	63	10.5	16	0	0	100
Replication Sample							
No. of Statements	15	36	10	20	6	1	88
Percentage	17	41	11	23	7	1	100

The results of the repeat discussion with another group of younger Malay less educated females are consistent with those of the original sample although the replication sample's attribution to supernatural causes is slightly lower. The total number of statements in each of the categories was lower in the original sample than in the replication sample. This was because the participants in the original sample, though verbal, were mainly talking about the same beliefs in great detail. Attempts to encourage and elicit other beliefs were made but these participants were very taken up by elaborating in detail on the beliefs they had brought up. The replication sample generally offered more beliefs for each category.

When compared across the original and replication samples, however, the percentage of each of the categories remained approximately the same. These results were representative only of the younger Malay less educated female group and therefore should not be generalised to all the other Malay groups.

DISCUSSION

This study examined explanations for the behaviours of people suffering from schizophrenia among the lay Chinese and Malay Singaporean population, sampled systematically in different demographic subgroups. A striking aspect of our findings was the high priority accorded to psychosocial causes by both Chinese and Malays. Research on the perceived causes of schizophrenia among patients' relatives in China has similarly shown a predominance of psychosocial over biological causal models (Phillips et al, 2000). Similar to earlier studies (e.g. Kleinman, 1980), Phillips et al found that the beliefs of family members did not concur with the Chinese professionals' ideas about the biomedical causes of schizophrenia. Chung et al (1997) found that a high proportion of the Chinese sample in Hong Kong thought that symptoms of schizophrenic illness were a normal reaction to psychosocial stress. Other studies have also reported that the lay population and caregivers in both developed and developing countries attach great importance to psychosocial influences on the aetiology of schizophrenia (Angermeyer & Matschinger, 1994; Furnham & Bower, 1992; Jorm et al, 1997; Karanci, 1995). The results of the present study are consistent with these findings.

Compared to the German population studied by Angermeyer & Matschinger (1994), the main difference was that the lay population in Singapore expressed more causal beliefs concerning the influence of supernatural power. This category was ranked fourth, after psychosocial, biological and intrapsychic factors, whereas in the German sample it was ranked last with only a very small minority of respondents citing such causes. However, differences in the way beliefs were elicited in the two studies mean that direct comparisons must be treated with

caution. In a study of Chinese psychiatric patients in Singapore, Kua et al (1993) found that belief in spirit possession as the cause of their illness was a common phenomenon. While their sample showed a higher frequency of female than male patients believing in supernatural causes, this effect was not seen in the present study except for the younger Malay less educated female participants.

Littlewood and Lipsedge (1997) have emphasized that certain aspects of culture provide people with ways of interpreting and understanding mental illness. This was confirmed by Sheikh and Furnham's (2000) study in which religion was a significant predictor of attitudes to seeking help among their British Asian sample when faced with mental distress; their Muslim sample had a significantly higher score for beliefs in supernatural causes of mental distress compared to the British sample. Their definition of "supernatural", however, encompassed more the traditional religious interpretation of supernatural forces as in the "power or work of God" than the cultural interpretations of black magic and sorcery.

From the results of the present study, however, it appears that supernatural beliefs are only expressed by a minority of the Singapore lay population, and are particularly associated with a particular demographic subgroup - younger, less educated Malay women. The definition of "supernatural" here referred to both the religious and cultural interpretations which includes witchcraft, black magic and spirit possession. The lack of greater emphasis on supernatural beliefs in the Singaporean population was unexpected, considering that this is a multi-cultural society that still practises and believes in many cultural and religious rituals. One explanation may be the current modernization and "Westernization" processes that are currently influencing Singapore.

However, observation of the groups suggested another, quite different interpretation. The younger, less educated Chinese females made no attributions to such causes at all throughout the discussion, and were noted to be very apprehensive about making statements citing supernatural factors; in fact, their superstitious belief that one should not talk about or "put blame on such supernatural things" came across quite clearly during the discussion, "just in case we offend the spirits". So it is likely that members of this group failed to make any such statements not because they did not believe in supernatural causes but because they believed that expressing such opinions would make them vulnerable to supernatural forces. A repeat discussion with another group of similar respondents would have been interesting but this was unfortunately not carried out. Thus, this study warns that supernatural beliefs as a category may be systematically underestimated, a finding that may require a revaluation of studies in this area. Religious and cultural interpretations of "supernatural" should also be separated into two different categories.

A final prediction concerned ethnic differences in the way each group made statements within the intrapsychic category. As expected, statements in this category were made significantly more frequently by Chinese than Malay participants. Within the Chinese group, there was a tendency for older more highly educated Chinese female participants to attribute more beliefs about the causes of abnormal behaviour to the inherent instability and weakness of character of the individual. Older Chinese males also made relatively more attributions to intrapsychic factors. A likely explanation is that cultural values do influence the general attitude of the Chinese making them more critical and demanding of

themselves and of people around them. The Malay culture is generally more accepting and tolerant, and tend to direct less blame towards the afflicted.

Since attributions of blame directed by relatives to the inherent character of the individual are associated with high levels of expressed emotion (Brewin, 1994; Brewin et al, 1991), one implication is that Chinese families are more likely to be high in expressed emotion. Chinese patients are, therefore, more likely to relapse than Malay patients. This would be an important area for future research.

According to Kleinman (1978), psychiatric disorders in different cultures vary in terms of epidemiology, symptomatology, illness behaviour (course and outcome), illness beliefs and even psychophysiological experiences. Lay people in different cultures use different explanatory models to understand an episode of illness, its aetiology, symptoms, methods of treatment and expectations of its course and outcome (Kleinman, 1980). Thus it is important that cultural differences are not overlooked.

Studies of psychiatric patients and their relatives are valuable but may be coloured by the respondents' exposure to psychiatric services or psychoeducation programmes. In order to confirm that their beliefs are representative of the society in which they live, such data need to be supplemented by general population surveys. Arguably, eliciting such causal beliefs spontaneously through semi-structured small group discussions is likely to yield more reliable data than the use of structured interviews or questionnaires with fixed response options predetermined by the researcher. Again, empirical data are needed on this point. In the current study the discussions among highly homogeneous groups of respondents appeared to be an effective vehicle for eliciting beliefs but, as noted,

they were affected by cultural norms especially with regard to the voicing of supernatural beliefs.

The main weakness of this study is the small sample size of the study and of the small number of participants in each small group discussion. Replication on a larger sample, ideally including the Indian ethnic group, would provide for a more accurate picture of the Singaporean lay population's beliefs. Multiple groups of each small group would also be beneficial. Given the small sample size and the exclusions of the Indian group, it would be unwise to conclude that the findings are representative of the total population of Singapore. The sample was not representative of the lay population. A representative sample may or may not have given a different picture altogether of the lay population's beliefs. This would be an interesting direction for future research.

It is possible that group dynamics could have affected the direction of the small group discussions. Although steps were taken deliberately to provide for a more spontaneous and natural way of eliciting beliefs by holding discussions in small groups in a semi-structured format, this in itself could have coloured the production of beliefs. Further research using an individual interview format would be interesting.

Nevertheless, this is an exploratory qualitative study which could guide a larger quantitative study with a representative sample. Furthermore, the results from this study are useful as they have provided some insight into the beliefs of the two ethnic groups in the lay population. These beliefs are likely to affect the beliefs of patients and their caregivers. The results have also shown that beliefs may not simply vary with ethnicity, but may be most prevalent in specific demographic

subgroups. Knowledge about these beliefs can help in numerous ways, including building better therapeutic relationships with patients and their caregivers, and improving compliance with psychiatric treatment. Finally, these results have provide the basis for constructing the first draft of a culturally-relevant questionnaire that can be used to assess the beliefs of Chinese and Malay patients and their caregivers.

CHAPTER 4

Development of the Beliefs Questionnaire

Introduction

The need for a culturally relevant questionnaire

The findings of the study on the beliefs of a sample of the lay population in Singapore about causes of schizophrenia as described in Chapter 3 have provided the basis for the development of a questionnaire that will be relevant to the Singaporean culture.

Anthropological studies have emphasized the importance of paying attention to the relation of culture of a society to the experience of mental illness (Kleinman, 1978, 1980; Littlewood, 1990). Beliefs of patients and their caregivers about the causes of an illness are affected to a large extent by the beliefs of the society in which they live. This in turn is influenced by the cultural and religious beliefs and values of the various groups that make up that society. Beliefs of one country may not be the same as beliefs of another country. Hence a questionnaire about the beliefs in one country may not be relevant or suitable for use in another country.

In investigating the beliefs of patients and caregivers about the aetiology of schizophrenia, culture-sensitive measures of causal beliefs should be based on the prevailing beliefs of the society from which they have been sampled. Such measures would then be culturally relevant for that population. Patients'

beliefs play an important role in determining their help-seeking behaviour, the pattern of service utilization and adherence to recommended interventions, which ultimately affects the course and outcome of their illness. An understanding of their belief system can help develop meaningful approaches to enhancing compliance with treatment and provision of appropriate clinical care.

Beliefs about causes and treatment of schizophrenia: Previous studies

Phillips et al's (2000) Causal Models Questionnaire for Schizophrenia (CMQS) is based on 45 folk explanations elicited from patients' family members during counselling sessions and administration of the Camberwell Family Interview. These explanations were grouped into six causal classes and were incorporated into the CMQS. The six causal classes were: social environment, personal characteristics of the patient, the patient's interpersonal relationships, physical/biological factors, spiritual/mystical factors and miscellaneous causes.

For their study comparing patients' relatives and the general public's perception of psychotic symptoms, Chung et al (1997) used a case vignette that unambiguously depicted serious psychotic symptoms and a multiple choice response format which consisted of "supernatural influence", "normal reaction to stress", "mental illness or interpersonal conflicts". They also asked their subjects to indicate the appropriate sort of treatment from choices which could consist of one or more items including "rest", "no attention needed", "seek help from police", "consult a physician", "solve his problems in other areas", "neurosurgical intervention", "consult a clergyman or traditional Chinese priest", "take

medication", "seek help from someone in a powerful position", "consult a psychiatrist" or "be admitted to hospital".

To investigate the beliefs of the German lay public with regard to aetiology of schizophrenia, Angermeyer & Matschinger (1994) drew up a catalogue of six possible categories of causes and devised three items for each of these categories (refer to Table 3.1 in Chapter 3). Details of Angermeyer & Matschinger's categories and items for their questionnaire have been described in Chapter 3.

Angermeyer & Matschinger (1994) also inquired about treatment of schizophrenia using a catalogue of eight treatment approaches which they devised to manage schizophrenia. The methods covered self-help, alternative therapies and recognized methods of therapy (refer to Table 3.2 in Chapter 3). Interviewees indicated whether they favoured or opposed each of the methods. Their results showed that the public felt prevailing psychosocial factors were the main cause of the schizophrenic disorder, and that they preferred psychological treatments to psychotropic drugs. A large majority advised against seeking help within the individual's support system while more than 50% considered psychotherapy the appropriate treatment. Psychopharmacotherapy was the method least recommended.

Furnham and Henderson (1983) have found that lay people are often more forthcoming or happier to talk about the cure for problems rather than the cause. They argued that there is likely to be a link between the type of causal

belief/attribution a person offers for a phenomenon and the sort of remedy believed necessary to cure or eradicate it.

Furnham and Henley (1988) studied lay beliefs about overcoming four psychological problems: agoraphobia, anorexia nervosa, compulsive gambling and schizophrenia. Five factors (ie inner control, understanding/help, avoidance of provoking situations, physical basis and fate) were extracted to categorize these cures. They found that schizophrenia was believed to have a physical basis more than the other three problems; hence some sort of physical cure was ranked most highly followed by understanding/help, and lastly avoidance of provoking situations. Individual differences, namely sex, age, education and religious practice were found to be significant predictors of attitudes towards treatment approaches. They concluded that a person's perceived 'cure' is highly correlated with the perceived cause. Various other studies have explored the relationship between causality and remedy (Knapp and Karabenick, 1985; Henley and Furnham, 1988).

Luk and Bond (1992) replicated Furnham and Henley's (1988) study in a different culture, extending their study to incorporate various culture-bound problems of the Chinese population in Hong Kong. They found that the Hong Kong Chinese on the whole appeared to have an interactionistic approach for explaining problems but used predominantly internal attributions for cure ie self-help approaches in which the patients themselves should be responsible for taking remedial measures. Such replications in different cultural settings are

important as they reiterate Kleinman's (1988) emphasis that cultural differences must not be overlooked if high validity is desired.

The present study

Developing a questionnaire on beliefs about causes and treatment of schizophrenia for the Singapore population

It is important, therefore, that the tool used to assess the beliefs of a specified patient population should be relevant to that population, and a questionnaire should be developed based on the belief system of the society from which that patient population is drawn. Although a questionnaire developed specifically for use in one society may not be completely culturally relevant for use in another society, some of the categories may be relevant and adaptable. Some of the items in the questionnaire that Angermeyer and Matschinger (1994) devised for their study may not be suitable for use in the Singaporean context but the six categories they postulated seem to be applicable and culturally relevant to the present study of the Singapore population. Hence the categories (but not the items) were adopted for this study.

The present chapter describes the development of a questionnaire for patients with schizophrenia about the causes of their illness. This questionnaire would be relevant to the multi-ethnic and multi-religious society of Singapore as it would be based on the causal beliefs elicited from a sample of the Singaporean lay population. The six categories of possible causes as postulated by Angemeyer & Matschinger (1994) will be used in this questionnaire. The belief statements formed Part I of the Questionnaire. A 4-point likert scale rating was used; the rationale for this is discussed in the methodology section under Development of the Patients' Belief Questionnaire: Part I Causal Beliefs.

Part II of the Questionnaire consisted of nine statements concerning treatment of schizophrenia. These were based on suggestions for cure made by members during the small group discussions of the lay beliefs study described in Chapter 3. This is discussed in detail in the methodology section.

Six questions formed Part III of the questionnaire and these questions addressed the patients' cultural and general perception of their illness. Question 1 asked if they believed they were suffering from a mental illness. Five other related questions addressed their perception of the psychiatrists' attitude towards their beliefs, if they had problems taking the medication and if they had consulted a traditional healer prior to seeking help from the hospital, if they are still receiving such treatment and if they believed it could help them with their illness. These six questions required a 'yes', 'no' or 'unsure' response.

. These three parts comprised the Patients' Belief Questionnaire (Appendix 4.3.1). The Patients' Beliefs Questionnaire was translated and back-translated into Mandarin (Appendix 4.3.2) and Malay (Appendix 4.3.3). The Questionnaire was administered to a cohort of patients who had a diagnosis of schizophrenia and were readmitted to Woodbridge Hospital, using the English or the translated versions as appropriate.

<u>Caregivers' beliefs</u>

As caregivers' beliefs are important and directly affect care-seeking behaviour (Fosu, 1981) and patients' adherence to psychiatric treatment (Kelly *et al.*, 1987), a caregivers' version of the questionnaire, parallel to the patients'

version was developed to examine their beliefs about the causes and treatment of the patients' illness. Certain wordings of the Patient's Beliefs Questionnaire in the instructions and items were changed eg 'the causes of your relative's problems that led to his admission' instead of 'the causes of the problems that led to your admission to Woodbridge Hospital'. All ratings were similar to the Patient's Beliefs Questionnaire ie a 4-point likert scale rating. Part II on treatment approaches and Part III on general questions were also included in the Caregivers' version with the relevant changes of words. Refer to Appendix 4.4.1 for the English version of the Caregiver's Belief Questionnaire. The Questionnaire was translated into Mandarin (Appendix 4.4.2) and Malay (Appendix 4.4.3).

<u>Caregivers' beliefs in other studies</u>

Phillips et al's (2000) study found that, similar to Kleinman's (1986) findings, the beliefs of Chinese family members they interviewed did not concur with the Chinese professionals' ideas about the biomedical causes of the illness; instead they predominantly endorsed the psychosocial causal models which have also been reported in the general public and among caregivers in both developed and developing countries (Furnham & Bower, 1992; Karanci, 1995, Jorm et al, 1997).

While the level of awareness of psychotic symptoms as features of schizophrenia in caregivers of patients in Chung et al's (1997) study is higher than that of the general public sample in their study, they found that the

caregivers' ability to recognize such symptoms ability was still relatively poor and the authors emphasized the need for psychoeducational programmes.

Angermeyer & Matschinger (1996) examined the beliefs commonly held by caregivers of persons suffering from schizophrenia concerning the causes of this disorder and showed some different results. Using the list of 15 causal factors they derived from the data of their earlier lay belief study by means of their new method of multiple unidimensional unfolding (Matschinger & Angermeyer, 1996), they found that these caregivers ranked biological reasons as the most common causes, like disorders of the brain, heredity and a weak mental constitution. Psychosocial factors such as stress in partnership and family were ranked second, followed by unconscious conflict or isolation and consumption of drugs or alcohol abuse. This was in vast contrast to the results of their earlier survey of the general public who cited mainly psychosocial factors, especially stress-related factors, to explain the development of the disorder.

They argued that this discrepancy was due to the caregivers being in closer contact with psychiatry in general, thereby having greater exposure to psychiatric knowledge than the lay public. This subsequently resulted in their beliefs resembling more closely the biomedical theory of schizophrenia which attaches more significance to biological factors than to psychosocial influences. They also attributed this preference for biological explanations to the caregivers' attempt to ward off feelings of guilt and possible accusations holding them responsible for the development of the illness as suggested by McClean (1990). This was further substantiated by the finding that mothers, more than any other

caregiver, attributed the illness to a disorder of the brain, while at the same time refusing to accept the idea that the patient's wrong upbringing might have been a contributing factor.

However, they conceded that their results could not be considered representative of all caregivers of persons suffering from schizophrenia as their sample comprised only those caregivers who had joined a self-help organization. This subgroup is likely to actively seek information about the schizophrenic illness and their style of coping and their beliefs about the treatment of the disorder are likely to have a specific selection effect. It was not possible to exclude the possibility that other caregivers who are not members of such self-help groups to be more inclined to share the beliefs generally found among the lay public.

Predictions

In developing this Patients' Beliefs Questionnaire, several predictions were made before it was administered to a cohort of the local Singaporean patient population. These predictions were in relation to the clustering of the items of the Questionnaire into the various categories according to the responses of the patients, and also in relation to the ranking of these categories. It is also predicted that there will be significant differences in beliefs between certain groups of patients based on demographic factors and also among the caregivers. Some of these predictions are based partially on the findings of the lay beliefs study. The predictions are listed below under various headings.

Within the patient cohort

I Patients' Causal beliefs:

Factor analysis of causal beliefs:

4.1.1 It is predicted that the patients' responses to the 30 items of the Part I of the Patients' Beliefs Questionnaire will fall into the same 6 categories as Angemeyer and Matschinger's (1994) categories. This is because these 6 categories are not alien in Singapore, in fact they are quite commonly mentioned amongst the Singaporean population.

Ranking of the categories of causal beliefs:

4.1.2 Beliefs in psychosocial causes will be most strongly endorsed among the 6 factors. This would be consistent with the findings of the present lay

beliefs study in Chapter 3 and with the other studies in developed and developing countries.

Demographic factors and causal beliefs:

4.1.3 There will be significant differences in the way male and female patients attribute the causes of their illness. It is predicted that male patients will attribute more blame to financial pressures and demands of society than female patients.

4.1.4 Malay patients will believe significantly more in supernatural causes and Chinese patients will believe significantly more in intrapsychic causes than Malay patients. These predictions are based on the literature reviewed in Chapter 1 and Chapter 2.

4.1.5 Patients with a higher level of education will attribute significantly more causes to biological reasons than the lower educated patients and lower educated patients will attribute more to psychosocial and supernatural causes than the higher educated patients.

4.1.6 Patients belonging to the lower social economic status (SES) will believe significantly more in supernatural causes than patients from higher SES.

II Patients' Treatment beliefs:

Factor analysis of treatment beliefs:

4.2.1 It is predicted that the nine items will fall into the 3 categories as shown in Table 4.4 with 3 items in each category.

Ranking of treatment beliefs:

4.2.2 Psychosocial treatment approaches in which patients are helped to cope better with stress and encouraged to improve themselves through support and advice provided by friends and relatives will be most strongly endorsed and ranked highest of the 3 treatment categories.

Demographic factors and treatment beliefs:

4.2.3 It is predicted that Chinese patients will believe more in psychosocial methods and Malay patients are predicted to believe more in supernatural methods than Chinese patients.

4.2.4 Higher educated patients will endorse more professional treatment methods than lower educated patients and lower educated patients are predicted to endorse more supernatural and psychosocial treatment approaches than higher educated patients.

4.2.5 Patients in the lower income groups are predicted to endorse more supernatural treatment approaches beliefs than those in the higher income groups.

Patients' Causal beliefs in relation to their treatment beliefs:

4.2.6 Patients who endorse supernatural causes of schizophrenia will endorse supernatural methods of treatment. Those who endorse biological beliefs will endorse professional mental health care methods of treatment and patients who endorse intrapsychic causes will endorse psychosocial methods of treatment.

Duration of illness, causal beliefs and treatment beliefs:

4.2.7 Patients with a longer duration of illness will endorse more biological causes and professional mental health care methods of treatment.

III General questions to Part III of the Beliefs Questionnaire:

4.3.1 As patients' beliefs about the causes of their problems will be closely related to their perception about their mental status, it is predicted that patients who believe their problems are caused by biological factors will believe they have a mental illness and will therefore endorse 'Yes' to the first question of Part III.

4.3.2 It is predicted that patients who feel that their psychiatrists do not respect their beliefs will report having problems with their medication which they probably feel is unnecessary.

4.3.3 It is predicted that patients who endorse supernatural forces as the cause of their problems would have consulted a traditional healer before seeing a psychiatrist, is likely to be receiving ongoing traditional treatment and

believe that such treatment would help eradicate the problems and would have answered 'yes' to items 4, 5 and 6 in Part III of the questionnaire.

Caregivers

IV Caregivers' Causal and Treatment beliefs:

4.4.1 Caregivers of patients in Singapore are predicted to believe most in psychosocial causes of the schizophrenic disorder.

4.4.2 Malay caregivers will endorse significantly more supernatural causaland treatment beliefs than Chinese caregivers. Chinese caregivers will attribute significantly more blame to intrapsychic factors and endorse significantly more psychosocial treatment methods.

Between patients and caregivers

V Causal & Treatment beliefs and responses to questions in Part III

4.5.1 It is predicted that patients' causal and treatment beliefs will correlate highly with their caregivers' causal and treatment beliefs.

4.5.2 As all patients have had at least one readmission, if not many more, it is likely that they do not have much insight into their illness and will not believe they are suffering from any mental illness. Caregivers, being more objective are likely to believe that the patients are suffering from a mental illness. Hence, it is predicted that there will be a significant difference in

opinion between patients and caregivers in responding to Question 1 of Part III of the Questionnaire.

METHOD

Participants

The responses of two groups of participants were utilised in the development of the Beliefs Questionnaire – the patients and the patients' principal caregivers. Patients were administered the Patient's Beliefs Questionnaire and caregivers the Caregiver's Beliefs Questionnaire .

Participants: Patients

Patients for this study were recruited from Woodbridge Hospital which is the state mental hospital. With a maximum bed capacity of 3000, Woodbridge Hospital serves as the main provider of inpatient psychiatric care for the island state of Singapore. Being a publicly-funded institute, the majority of patients requiring outpatient psychiatric treatment are followed-up at the Hospital's outpatient and affiliated community psychiatric clinics. Recent annual statistics of the Hospital recorded some 5800 community psychiatry outpatients on its register (Woodbridge Hospital, 2000).

Patients discharged from Woodbridge Hospital are initially seen as outpatients in the Institute of Mental Health outpatient clinic which is in the same geographical vicinity as the Hospital. When these outpatients are deemed fairly stable mentally they may be transferred to community psychiatric outpatient clinics which are affiliated to Woodbridge Hospital and scattered across the island; patients are usually referred to the outpatient clinic closest to their homes. The majority, however, are followed-up at the outpatient clinics at the Institute of

Mental Health where the mental healthcare teams are primarily placed. The Institute of Mental Health also serves as the center of research and for training of mental healthcare professionals including trainee psychiatrists and psychologists.

The routine procedure for diagnoses of patients seen at the Institute of Mental Health and Woodbridge Hospital is that the attending psychiatrist makes the initial diagnosis which must be endorsed by the consultant-in-charge. The cohort of patients recruited for this study had been given the diagnoses of schizophrenia following the DSM IV criteria following the routine procedure for diagnosis. They were inpatients, readmitted to the acute wards of Woodbridge Hospital following a relapse or acute psychotic episode.

The Patient's Beliefs Questionnaire was administered to a total of 230 Chinese and Malay inpatients of Woodbridge Hospital. The sample comprised 127 Chinese (69 [54.3%] male and 58 [45.7%] female) and 103 Malays (58 [56.3%] male and 45 [43.7%] female), with age range between 18 and 62 years.

See Table 4.1 for demographic profile of the 230 patients.

Table 4.1
Demographic profile of the 230 patients who were administered the Patients' Belief Questionnaire

		Number	Percentage
Sex:	Male	127	55.2
	Female	103	44.8
Ethnic group:	Chinese	127	55.2
	Malay	103	44.8
Religion:	Buddhist/Taoist	72	31.3
	Muslim	104	45.2
	Christian	39	17.0
	Others (atheist, freethinker, no religion)	15	6.5
Education:	No formal education	10	4.3
	Primary	65	28.3
	Secondary	106	46.1
	Vocational	20	8.7
	Pre-university	14	6.1
	Tertiary	15	6.5
Marital status:	Single	158	68.7
	Married	35	15.2
	Divorced/separated	31	13.5
	Widowed	6	2.6

All patients readmitted to Woodbridge Hospital are captured on the computer database in the admissions room. Over a one-year period Chinese and Malay patients diagnosed with schizophrenia according to DSM IV criteria were noted. All Malay patients were recruited for the study until the number required was met. As for the recruitment of Chinese patients, based on the Chinese/Malay ratio of 8:1 in the population, every 8th Chinese patient admitted was recruited. During the recruitment of the patients, it was noted that Malay, especially female Malay patients, were considerably less in number despite the system of recruitment. This was because of the scarcity of Malay females being admitted to the hospital partly owing to the ethnic group & gender ratio, but also because, based on general observation, there seems to be the high tolerance and preference of Malay relatives to keep female patients at home unless they are acutely psychotic or chronically ill.

Inclusion & exclusion criteria

All patients in this study were Singaporean citizens; all foreigners and non-Singaporean citizens were excluded. Only patients admitted to the acute wards were considered; those admitted to the chronic, alcoholic, psychogeriatic and medical wards were excluded. Patients with first-episode psychosis admitted to the hospital for the first time were also excluded. Patients admitted to remand wards for criminal offences were excluded as many of these patients were often sentenced to imprisonment and lost to the hospital for a period of time. Thus the sample under study represented only the severely ill schizophrenic patients with

florid symptoms and with no forensic records readmitted to the acute wards. Those with obvious organic brain disease or history of substance misuse over the past three months, with serious physical or medical illness and intellectual disabilities, and those readmitted for respite care as requested by caregivers or social reasons were excluded.

Out of the sample of 230, 197 of them were recruited specifically for the main study of this thesis while the remaining 33 were specifically for purpose of testing the reliability of the questionnaire. Most of the patients approached agreed to participate in the study except for 12 patients of which 5 were Malay females, 3 were Chinese females, one was a Malay male and the remaining 3 were Chinese males. Ten of these patients refused to participate after the procedure of the study was explained to them; they were suspicious of and hostile towards the investigator despite being regarded mentally stable by their psychiatrists. The remaining 2 patients preferred not to participate as they claimed to be too tired and forgetful to answer any questions.

Participants: Caregivers

A caregiver is defined here as the person most responsible for and in contact with the patient, although that caregiver may not necessarily be staying with the patient. Only 67 principal caregivers (34%) of the total cohort of patients were interviewed. Most of them were interviewed when they visited the patients in the ward. Telephone calls were made to caregivers who had not been

interviewed, requesting them to come to the hospital for the interview; only a few of these caregivers agreed to attend.

Although about 80% of the patients lived with their families, only 34% of the total cohort of patients' caregivers responded to the request to be interviewed. Twenty-six percent of the patients were no longer in contact with their family members. Twenty percent of the patients' caregivers could not be contacted over the telephone and the remaining 20% patients' caregivers refused to come to the hospital to be interviewed, giving the excuse that they were busy working, had young children or elderly parents to look after or just had no time for the patient who has been admitted to hospital so frequently in the past.

Unlike Angermeyer & Matschinger's (1996) sample of relatives, the caregivers of the present study did not belong to any self-help groups but like their sample, the response rate was rather poor although their method was not through direct contact but through questionnaires sent through the mail. They had a response rate of only 23.4%.

Forty-three Chinese caregivers (64.2%) and 24 Malay caregivers (35.8%) were interviewed. There was an almost equal number of male and female relatives and their ages ranged from 31 to 82 years. Table 4.2 below shows the demographic profile of the caregivers who were interviewed.

Amongst the caregivers who were interviewed, there was a preponderance of mothers (34.3%), not unlike Angermeyer & Matschinger's (1996) sample of relatives. Of the other relatives, 22.4% were spouses and 17.9% were siblings of the patients. The majority of caregivers were married

(70.1%) and 86.6% were working, either in full-time or part-time employment. Most of them (55.2%) were in the lower income bracket (ie below S$2000 mean per capita monthly income of the patients' household).

Table 4.2
Demographic profile of the 67 principal caregivers of patients

		Number	Percentage
Sex:	Male	33	49.3
	Female	34	50.7
Ethnic group:	Chinese	43	64.2
	Malay	24	35.8
Relationship:	Father	12	17.9
	Mother	23	34.3
	Spouse	15	22.4
	Sibling	12	17.9
	Relative	4	6.0
	Others (friend)	1	1.5
Religion:	Buddhist/Taoist	25	37.3
	Muslim	25	37.3
	Christian	11	16.4
	Others (atheist, freethinker, no religion)	6	9.0
Education:	No formal education	9	13.4
	Primary	22	32.8
	Secondary	25	37.3
	Vocational	3	4.5
	Pre-university	2	3.0
	Tertiary	6	9.0
Marital status:	Single	8	11.9
	Married	47	70.1
	Divorced/separated	2	3.0
	Widowed	10	14.9
Work status:	Full-time	31	46.3
	Part-time	27	40.3
	Not working	9	13.4
Socioeconomic status:	$499 & below	0	0
	$500 - $999	7	10.4
	$1000 - $1999	30	44.8
	$2000 - $2999	11	16.4
	$3000 - $3999	5	7.5
	$4000 - $4999	5	7.5
	$5000 - $5999	3	4.5
	$6000 & above	6	9.0

Development of the Patient's Beliefs Questionnaire

Part I: Causal Beliefs

The belief statements elicited from samples of the lay population (Chapter 3) formed the basis for the construction of this questionnaire. The extraction and classification of these statements have been described in Chapter 3. It was decided that 30 items sufficiently represent the six categories according to the percentages of each category. Thirty items were also considered a reasonable and manageable number for a questionnaire which can be administered to patients in a clinical setting.

The ratio of items to the 6 categories was worked out and found to be 5:4:5:8:4:4 respectively based approximately on the distribution of percentages of the 6 categories (refer Table 3.3 in Chapter 3), giving a total of 30 items. Although the "Socialization" and "State of Society" categories had much lower percentages than the "Supernatural", it was necessary to increase the number of items in both these categories above their percentages to at least 3-4 items per category (equal to the number of items in the "Supernatural" category) to provide for a sufficiently reliable and meaningful measurement.

The language used for the items is simple and statements are phrased in a way that is familiar to the local population; some were actually verbatim replicas of statements made during the group discussions.

Frequency counts were made of the statements in each category. The 5 statements that were mentioned most often in the "Biological" category were included in the Questionnaire; similarly 4 most frequently mentioned in the

"Supernatural" category, the 5 most mentioned statements in the "Intrapsychic" category, the 8 most mentioned statements in the "Psychosocial" category and so on were included, with a final total of 30 most frequently mentioned statements from all 6 categories. The 30 statements were then arranged from 1 to 30 using the random digits table, giving Part I of the Patient's Beliefs Questionnaire. Table 4.3 shows the allocation of the 30 items into the 6 categories as perceived by the investigator and an independent rater, based on Angemeyer & Matschinger's (1994) categorization.

Initial drafts of the Beliefs Questionnaire using odd numbered-point (5 and 7-point) and even numbered-point (4 and 6-point) Likert scales were piloted to gauge the response of a sample of patients with schizophrenia and a sample of the local population to the Likert scale. A strong tendency to select the mid-point (neutral/middle point) was noted and therefore an odd numbered-point scale was not adopted. The 6-point rating scale for the items revealed that patients had much difficulty coping with a 6-point scale. Hence a 4-point rating was adopted and they are: (1) disagree strongly, (2) disagree mildly, (3) agree mildly and (4) agree strongly. Refer to Appendix 4.3.1 for the Patients' Beliefs Questionnaire. This Questionnaire was translated and back-translated into Mandarin (Appendix 4.3.2) and into Malay (Appendix 4.3.3).

Table 4.3

Allocation of the 30 items into the 6 categories: Part I of Patients' Beliefs Questionnaire

Category	Item No.	Belief Statement
Biological	9	Something I have eaten that affected my brain eg certain foods, drugs, alcohol, etc
	18	Some illness or physical injury that affected my brain when I was younger
	20	Something that happened to my mother when she was expecting me ie pregnant
	26	Genes inherited from my parents, relatives or previous generation
	29	Brain damage, something wrong with my brain or some mental illness
Supernatural	12	Black magic, supernatural 'charm' or 'kong tow'
	22	Being possessed by evil spirits
	25	Having no religion or the wrong religion
	28	Touching something 'dirty' or going to 'unclean' places
Intrapsychic	1	Thinking too much
	11	My mind is very weak
	15	Having strong feelings eg anger, jealousy, fears, sadness or frustrations
	16	My inability to cope with life
	17	Problems with my character
Psycho-social	3	The financial status of my family background
	4	Events in my life eg divorce in my family, failing exams, loss of my job or no job, death of a loved one, etc
	8	Financial problems
	13	My accommodation – too crowded or too lonely
	14	Relationship problems with family or friends
	19	Coming from a family with lots of problems
	23	The demands and pressure of our society
	27	Work or study stress
Socialization	6	My parents being either too strict or too lenient when I was young
	7	Influence of watching television
	21	Being either too pampered or too neglected by my parents in my childhood
	24	The way I was brought up by my parents
State of Society	2	Society becoming too modern and competitive
	5	Our society's high cost of living
	10	Being isolated and neglected by society
	30	Being all alone with no support from family or friends

Part II: Treatment Beliefs

Statements pertaining to methods of treatment during the small group discussions of the lay population as described in Chapter 3 were few and far in between. Eliciting suggestions for treatment methods was not formally within the semi-structured interview schedule but towards the end of the discussion session, each group was asked their opinion about cures for the disorder. Members of the groups generally seemed reluctant to offer suggestions because they felt they were not the 'experts' and therefore not qualified to speak up. This is quite unlike Furnham & Henderson's (1988) participants who were very forthcoming about this issue. This may be a reflection of cultural differences.

From the small pool of statements made, three were selected for each of the approaches: psychosocial, professional and supernatural methods. These represented practical and common treatment approaches in dealing with abnormal behaviours. These treatment approaches comprised Part II of the Questionnaire. They are shown in Table 4.4 below and can be found in Part II of Appendix 4.3.1. These items were arranged in the order found in the Questionnaire using the random digits table.

Patients were asked to rate the strength of their beliefs in these treatment approaches on the same type of 4-point Likert scale as in Part I.

Table 4.4
Treatment approaches suggested by lay sample: Part II of the Patients' belief Questionnaire

Categories	Item number in Questionnaire	Treatment methods
Psychosocial	1 7 9	Talking to my parents, a relative or friend Getting love, care and support from people Teaching my family to understand and to deal with my problems better.
Professional mental healthcare	3 5 6	Getting treatment from Woodbridge Hospital or clinic Taking medicine given by a doctor Getting professional counselling
Supernatural	2 4 8	Praying to God and or consulting a religious healer Seeing a bomoh/temple medium/faith healer Taking traditional medicine

Part III: General

In Part III of the Patients' Beliefs Questionnaire, respondents were requested to answer "Yes", "No" or "Unsure" to six questions. It was decided that there should be an "Unsure" choice so as not to "force" the responders into answering to a "yes" or a "no". (Refer to Part III of the Patient's Belief Questionnaire in Appendix 4.3.1.) These questions asked responders if they believed if they had a mental illness, whether or not they felt their psychiatrists respected their beliefs and if they had any problems taking their medication. Questions 4-6 inquired if they had sought help from traditional healers before approaching the psychiatric services, if so whether they were still being treated by traditional healers and if they believed that the traditional healers could help them with their illness.

Test-retest reliability of the Questionnaire

The test-retest reliability of the all three parts (causal beliefs, treatment approaches and general questions) of the Patient's Beliefs Questionnaire was then examined. The Patient's version was administered to 33 patients who were not recruited into the main study. However, 5 patients were discharged before they could be retested on the Questionnaire; hence only 28 patients were administered the retest.

Test-retest reliability of each of the 30 items causal beliefs in Part I, the 9 treatment items in Part II and the 6 questions of Part III of the Questionnaire was

examined using the responses of the 28 patients at baseline and one week later. Findings are reported in the results section.

PROCEDURE

Admissions of patients to Woodbridge Hospital were checked daily at the Admissions and Emergency Department of the Hospital. Chinese and Malay patients readmitted to the Hospital were noted and recruited in a systematic procedure described in the Methodology section of this Chapter. These patients were tracked to the various wards and monitored for their mental status, based on the opinion of the attending psychiatrists.

When considered to be mentally stabilized, patients were seen in the wards and the procedure of the study explained to them. Their written consent (Appendix 4.1.1, with Mandarin and Malay translations 4.1.2 and 4.1.3 respectively) to participate in the study was obtained. Patients were then interviewed and demographic data was obtained. This information was confirmed through perusal of the patients' casenotes and, where necessary, with the patients' psychiatrists and caregivers. Patients were then administered the Patients' Beliefs Questionnaire, together with six other inventories. English-speaking patients were administered the English version of the Questionnaire while Chinese and Malay-speaking patients were administered the Mandarin and Malay versions respectively. Patients who were illiterate or unable to read had the Questionnaire read to them by the investigator in English, Mandarin, Malay or dialects as appropriate. These patients were requested to respond and rate accordingly.

Caregivers of patients who visited them in the wards were approached. The study was explained to the caregivers and their written consent (Appendix

4.2.1, with Mandarin and Malay translations 4.2.2 and 4.2.3 respectively) obtained before the Caregivers' Beliefs Questionnaire was administered to them. English-speaking caregivers were given the English version of the Questionnaire while Chinese and Malay-speaking caregivers were administered the Mandarin and Malay versions respectively. Caregivers who were illiterate or unable to read had the Questionnaire read to them by the investigator in English, Mandarin, Malay or dialects as appropriate. These caregivers were requested to respond and rate accordingly. Caregivers who did not visit the patients in the Hospital were contacted by telephone and requested to come to the wards during the patients' hospitalization to be interviewed.

Patients' and caregivers' responses to the Beliefs Questionnaires were collated, keyed into an ACCESS database, converted to SPSS and analysed.

Factor analysis

Patients: Causal Beliefs

According to Comrey and Lee's (1992) guide sample size for factor analysis, a sample size of 230 was considered fair, having suggested that 100 was poor, 200 fair, 300 good and 500 very good. It was not possible to factor analyse the data for each ethnic group separately because the sample size in each ethnic group was not sufficiently large.

The frequencies of the 30 items of the Questionnaire were examined. Four of the items were found to be skewed with more than 80% disagreeing with each of the items. With reference to Table 4.3, these were item 7 (influence of

watching television), item 9 (something that I have eaten that affected my brain), item 20 (something that happened to my mother when she was expecting me ie pregnant) and item 25 (having no religion or the wrong religion). Because of the skewedness these 4 items were removed and the remaining 26 items were factor analysed.

Factor analysis was conducted on the responses of the 230 patients to the 26 Belief items of Part I of the Questionnaire. The extraction method used was the Principal Component Analysis in which all the variance in the observed variables is analyzed. Kaiser's (1970, 1974) measure of sampling adequacy was good at 0.85 which suggested that the data was analyseable (values of 0.6 and above are required for good factor analysis). The factors were rotated to increase interpretability. Both orthogonal and oblique rotations were considered. Varimax (orthogonal) rotation was considered most suitable where all the factors were uncorrelated with each other.

Patient: Treatment approaches

The responses of the 230 patients to the 9 treatment approaches (Part II) of the questionnaire were factor analysed using the same varimax rotation.

Caregivers: Causal beliefs & treatment approaches

Factor analysis was not conducted on the 67 caregivers' responses to causal beliefs and treatment approaches as the sample size of the caregivers was too small.

RESULTS

Test-retest reliability

The weighted kappa values for the 30 causal beliefs in Part I of the Questionnaire which ranged from 0.50 to 0.92 showed the test-retest reliability for these items to be satisfactory. For the 9 treatment approaches in Part II, weighted kappa values ranged from 0.65 to 0.89. Test-retest reliability was shown to be very satisfactory for the 6 questions of Part III, with weighted kappa values ranging from 0.79 to 1.

Within the patient cohort

I Patients' Causal beliefs:

Factor analysis of causal beliefs (Prediction 4.1.1)

Factor analysis on the remaining 26 items (after removal of the 4 skewed items from the original 30 items) with varimax rotation revealed that 66.2% of the total variance was accounted for by 7 factors with eigenvalues greater than 1 (refer to Table 4.5).

Table 4.6 shows the rotated component matrix with the 26 items distributed across the 7 factors and the loading of the individual items within each factor.

Table 4.5

Total variance explained for the 26 items of causal beliefs
for
Patients' Beliefs Questionnaire

Total Variance Explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.635	29.366	29.366	2.768	10.648	10.648
2	2.512	9.661	39.027	2.631	10.118	20.766
3	1.986	7.640	46.667	2.626	10.099	30.865
4	1.611	6.194	52.862	2.608	10.032	40.898
5	1.248	4.802	57.663	2.501	9.620	50.517
6	1.180	4.539	62.203	2.384	9.169	59.687
7	1.050	4.038	66.241	1.704	6.554	66.241
8	.943	3.626	69.867			
9	.849	3.265	73.132			
10	.772	2.970	76.102			
11	.661	2.543	78.645			
12	.602	2.317	80.962			
13	.566	2.179	83.141			
14	.533	2.050	85.190			
15	.475	1.827	87.018			
16	.427	1.644	88.662			
17	.406	1.562	90.224			
18	.393	1.512	91.736			
19	.371	1.428	93.164			
20	.324	1.245	94.409			
21	.299	1.152	95.561			
22	.265	1.020	96.581			
23	.260	.999	97.580			
24	.233	.895	98.476			
25	.228	.876	99.352			
26	.169	.648	100.000			

Extraction Method: Principal Component Analysis.

Table 4.6

Rotated component matrix for the 26 items of causal beliefs
for
Patients' Beliefs Questionnaire

Rotated Component Matrix[a]

	Component						
	1	2	3	4	5	6	7
thinking too much	1.390E-03	1.480E-02	7.849E-02	.645	3.196E-02	.425	8.658E-02
soc too modern	.163	.680	.182	.147	-1.12E-02	.224	9.162E-02
financial status	.344	.225	.132	1.535E-02	5.020E-02	.649	.146
life events	-6.40E-02	-.104	.448	.340	-4.43E-02	.463	3.673E-02
soc high cost	.115	.517	.173	2.212E-04	1.629E-02	.633	9.682E-03
parents strict/lenient	.765	.179	3.517E-02	8.149E-02	2.190E-02	.303	.227
financial problems	.246	.321	.293	6.639E-02	4.538E-02	.685	5.699E-02
isolated by soc	8.828E-02	.374	.653	9.781E-02	1.439E-02	9.734E-02	.162
mind very weak	.160	5.096E-02	-8.32E-02	.768	3.972E-02	5.538E-02	-2.58E-02
black magic	6.404E-02	-1.18E-02	5.240E-02	-6.96E-02	.894	-3.25E-02	1.093E-02
accommodation crowded/lonely	.381	.493	.429	8.915E-02	9.903E-02	.247	8.843E-02
relationship problems	.207	-1.14E-04	.712	9.927E-02	-1.41E-02	.188	-5.72E-02
strong emotions	.111	-1.96E-02	.394	.536	-6.77E-02	1.154E-02	.140
inability to cope with life	.122	.263	.210	.728	6.728E-02	7.878E-03	.149
problems with character	2.329E-02	.415	.114	.648	-4.55E-02	-.102	.101
illness/physical injury	2.552E-02	.199	.129	-5.27E-03	5.534E-02	.196	.803
family lots of problems	.440	7.380E-02	.465	5.024E-02	4.953E-02	.418	8.685E-02
pampered/neglected by parents	.782	.234	.214	.151	1.080E-02	5.074E-02	8.918E-02
possessed by evil spirits	2.426E-02	-5.43E-02	-7.98E-04	6.726E-02	.920	3.944E-02	2.011E-02
demands & pressure of soc	.148	.714	.247	.143	-3.51E-02	6.736E-02	.107
way brought up by parents	.802	.151	.260	.116	-1.05E-02	.121	5.250E-02
genes inherited	.328	6.356E-02	-.158	.187	-5.82E-02	.369	.437
work or study stress	.215	.527	-.160	.158	-7.69E-02	.221	.184
touching something dirty	-5.97E-02	8.024E-03	-6.92E-02	3.913E-02	.898	4.650E-02	-1.22E-02
brain damage, something wrong, mental illness	.212	9.115E-02	7.453E-02	.223	-1.28E-02	-7.61E-02	.785
no support from family or friends	.180	.388	.666	9.749E-02	-2.35E-02	6.590E-02	5.934E-02

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 10 iterations.

Based on the loading of the 26 items, an arbitrary cut-off loading point was fixed at 0.430. Loadings of the 26 items ranged from 0.437 to 0.920. All 3 items in Factor 1 had relatively high loadings between 0.765 to 0.802; these items emphasized socialization issues. In Factor 2, the 4 items ranged from loadings of 0.493 to 0.714 and concerned societal demands and the state of the society. Factor 3 consisted of 4 items mainly concerning psychosocial problems of life and loneliness with loading ranging between 0.465 to 0.712. The 5 items in Factor 4 ranged from 0.536 to 0.728 and addressed issues pertaining to the character of the person (intrapsychic) while Factor 5 consisted of 3 items on supernatural beliefs which had the highest loadings amongst the 7 factors, between 0.894 and 0.920. Factor 6 had 4 items, 3 of which had loadings between 0.633 and 0.686, concerning financial pressures and one at 0.463 (original item no. 4 - events in my life eg divorce in my family, failing exams, loss of my job or no job, death of a loved one). Because this psychosocial item seemed rather irrelevant in Factor 6 and had a loading (0.448) in Factor 3 fairly close to its loading here in Factor 6, it would be more appropriate for this item to be included in Factor 3 instead of Factor 6. Factor 7 had 3 items, all addressing biological beliefs with loadings between 0.437 and 0.803.

Although Angemeyer & Matschinger's (1994) 6 categories were considered to be relevant in the Singapore context and was therefore adopted for this study, analysis of the local data has shown that there are some subtle differences. Patients with schizophrenia in Singapore have been shown to perceive that their illness and admission to a mental hospital for treatment are

attributable to 7 possible categories of causes. In relation to the allocation of the items into the 6 original categories as shown in Table 4.2, the 26 items have been reallocated into the 7 categories (which are basically the same 6 categories but with the addition of one new factor – Financial Pressures) to accommodate the perception of the present patient population under study. Table 4.7 shows the reallocation of the 26 items into the 7 categories.

Hence, Prediction 4.1.1 has been partially supported with some differences which have shown up the uniqueness of beliefs of the Singaporean patient population about the causes of schizophrenia.

Table 4.7
Patients' Beliefs Questionnaire
Allocation of the 26 belief items after factor analysis into the 7 factors

Category	Original Item No.	Belief Statement
Factor 1 Socialization (upbringing & family background)	6	My parents being either too strict or too lenient when I was young
	21	Being either too pampered or too neglected by my parents in my childhood
	24	The way I was brought up by my parents
Factor 2 State of Society (societal demands)	2	Society becoming too modern and competitive
	13	My accommodation - too crowded or too lonely
	23	The demands and pressure of our society
	27	Work or study stress
Factor 3 Psychosocial (problems of life & loneliness)	4	Events in my life eg divorce in my family, failing exams, loss of my job or no job, death of a loved one, etc
	10	Being isolated and neglected by society
	14	Relationship problems with family or friends
	19	Coming from a family with lots of problems
	30	Being all alone with no support from family or friends
Factor 4 Intrapsychic	1	Thinking too much
	11	My mind is very weak
	15	Having strong feelings eg anger, jealousy, fears, sadness or frustrations
	16	My inability to cope with life
	17	Problems with my character
Factor 5 Supernatural	12	Black magic, supernatural 'charm' or 'kong tow'
	22	Being possessed by evil spirits
	28	Touching something 'dirty' or going to 'unclean' places
Factor 6 Financial pressures	3	The financial status of my family background
	5	Our society's high cost of living
	8	Financial problems
Factor 7 Biological	18	Some illness or physical injury that affected my brain when I was younger
	26	Genes inherited from my parents, relatives or previous generation
	29	Brain damage, something wrong with my brain or some mental illness

Ranking of the 7 categories: (Prediction 4.1.2)

Patients' endorsement of the 7 categories of causal belief was captured from their responses to the Patients' Belief Questionnaire. The sum of patients' responses to items in each category was calculated and then divided by the number of items in each category. Based on these means, the 7 categories of causal beliefs were ranked according to the strength of the patients' endorsement.

Table 4.8 below shows the means of the 7 categories in descending order, together with the standard deviations. The results indicate that the sample of patients have ranked the supernatural category highest of the 7 categories. Second in rank was the intrapsychic category followed in third place by psychosocial category. The state of society category was ranked fourth with financial pressures at 5th position. Sixth in the ranking order was the biological category and 7th was the socialization category.

Thus the prediction that patients' beliefs will parallel lay beliefs in that the psychosocial category will be ranked highest as the main cause of schizophrenia has not been supported. Patients have instead endorsed supernatural factors as the main cause of their schizophrenic illness and concomitant problems.

Repeated measures analysis of variance showed a significant difference in the way patients responded to these 7 categories of causal beliefs ($F=27.668$; df 6, 1374; $p<0.001$). Refer to Table 4.8 below for the means of these 7 categories. Post Hoc analysis using Wilcoxon signed ranks test showed that the Supernatural and Intrapsychic categories were endorsed significantly higher than

any of the other categories ($p<0.001$) and the Biological and Socialization categories were least endorsed.

Table 4.8
Means & SDs of the 7 categories of patients' causal beliefs (N=230)

Category of causal beliefs	Mean	SD	Minimum	Maximum
Supernatural	2.44_a	1.24	1	4
Intrapsychic	2.26_a	0.89	1	4
Psychosocial	2.01_b	0.86	1	4
State of Society	1.91_c	0.88	1	4
Financial Pressures	1.85_{cd}	0.97	1	4
Biological	1.74_{de}	0.84	1	4
Socialization	1.67_e	0.92	1	4

Means followed by different subscripts differ significantly ($p<0.05$)

Demographic factors and patients' causal beliefs: (Predictions 4.1.3 – 4.1.6)

Male and female patients have been predicted to endorse the categories of causal beliefs differently. Table 4.9 shows the means, standard deviations, Mann-Whitney U-values and significance levels of the differences in beliefs between various groups of patients based on demographic factors – gender, ethnicity and educational levels.

Gender

Mann-Whitney U-tests showed significant differences between male and female patients in the way they endorsed causal beliefs in two out of the seven categories (refer to Table 4.9). Male patients endorsed significantly more beliefs that the state of the society was responsible for their illness than female patients. Males also attributed significantly more blame to financial pressures than females. Hence, Prediction 4.1.3 has been supported. There was hardly any difference between males and females in their beliefs about supernatural, intrapsychic, psychosocial and socialization causes.

Ethnicity

Between the two ethnic groups, significant differences were found in four categories of beliefs (refer to Table 4.9). Malay patients endorsed significantly more supernatural causal beliefs than Chinese patients. The Chinese, however, did not endorse significantly more Intrapsychic causes than the Malays (hence Prediction 4.1.4 was only partially supported) but the results showed that the

Chinese believed significantly more that factors in the state of the society, and biological and socialization factors were responsible for their illness than the Malays.

Educational levels

Patients were sorted into two levels of education; those who were educated up to secondary school level (10 years or less) were classified as lower educated and those with more than 10 years of formal education including tertiary education fell into the higher educated group. As shown in Table 4.9, no significant difference was found between patients in the 2 educational levels in the 7 categories of beliefs (largest $U=4420.00$, $p>0.05$). The prediction (4.1.5) that higher educated patients will endorse significantly more biological factors was not supported and neither was the prediction that lower educated will believe significantly more than higher educated patients that supernatural or psychosocial factors caused their illness.

Table 4.9

Patients' demographic factors & causal beliefs: gender, ethnic & educational level differences

Category	Groups	Mean	SD	Mann Whitney U	p
Supernatural	Male	2.42	1.24	6406.50	NS
	Female	2.46	1.25		
Intrapsychic	Male	2.29	0.89	6321.50	NS
	Female	2.24	0.90		
Psychosocial	Male	2.09	0.91	5938.50	NS
	Female	1.92	0.79		
State of Society	Male	2.09	0.88	4705.00	***
	Female	1.69	0.82		
Financial Pressures	Male	2.03	1.04	5070.50	**
	Female	1.63	0.83		
Biological	Male	1.83	0.89	5782.50	NS
	Female	1.62	0.75		
Socialization	Male	1.69	0.94	6297.50	NS
	Female	1.64	0.89		
Supernatural	Chinese	2.16	1.16	4725.00	***
	Malay	2.78	1.26		
Intrapsychic	Chinese	2.33	0.91	5950.00	NS
	Malay	2.19	0.88		
Psychosocial	Chinese	2.09	0.87	5722.00	NS
	Malay	1.91	0.85		
State of Society	Chinese	2.10	0.88	4629.50	***
	Malay	1.68	0.82		
Financial Pressures	Chinese	1.95	1.01	5786.50	NS
	Malay	1.74	0.91		
Biological	Chinese	1.86	0.87	5216.00	**
	Malay	1.58	0.78		
Socialization	Chinese	1.77	0.96	5617.00	*
	Malay	1.54	0.85		
Supernatural	Higher educated	2.13	1.22	3722.00	NS
	Lower educated	2.52	1.24		
Intrapsychic	Higher educated	2.15	0.89	4012.00	NS
	Lower educated	2.29	0.89		
Psychosocial	Higher educated	2.01	0.85	4420.00	NS
	Lower educated	2.01	0.87		
State of Society	Higher educated	2.09	0.91	3736.00	NS
	Lower educated	1.86	0.86		
Financial Pressures	Higher educated	1.98	0.96	3953.50	NS
	Lower educated	1.82	0.97		
Biological	Higher educated	1.69	0.88	4155.00	NS
	Lower educated	1.75	0.83		
Socialization	Higher educated	2.13	0.85	4179.00	NS
	Lower educated	1.66	0.94		

* p<0.05
** p<0.01
*** p<0.001

Socio-Economic Status (SES)

Looking at the SES of the patients, Kruskal Wallis test revealed only one significant finding among the seven categories of beliefs (refer to Table 4.10 below); a significant difference was found in the way patients from the eight income groups endorsed supernatural beliefs (χ^2=18.19, df=7, p<0.05). The highest supernatural beliefs mean (3.04, SD=1.24, median=4.00) was found within the lowest income group and the lowest supernatural beliefs mean (1.66, SD=1.20, median=1.00) was within the highest income group. There was not, however, a consistent descending pattern of means as the SES increased. Hence, the prediction (4.1.6) that patients from lower SES will endorse significantly more supernatural beliefs was supported only in that those from the lowest income group endorsed the most supernatural beliefs.

Table 4.10
Means of the 7 categories of beliefs of patients when sorted into the 8 SES levels

Category of beliefs	Group	Mean	SD	χ^2	df	p
Supernatural	$499 & below	3.04	1.24	18.19	7	* (0.011)
	$500 - $999	2.46	1.25			
	$1000 - $1999	2.68	1.23			
	$2000 - $2999	2.29	1.24			
	$3000 - $3999	1.77	1.02			
	$4000 - $4999	2.93	1.36			
	$5000 - $5999	1.93	0.89			
	$6000 & above	1.66	1.20			
Intrapsychic	$499 & below	2.33	0.80	5.96	7	NS
	$500 - $999	2.08	0.85			
	$1000 - $1999	2.18	0.86			
	$2000 - $2999	2.27	0.91			
	$3000 - $3999	2.35	0.93			
	$4000 - $4999	2.72	1.06			
	$5000 - $5999	2.24	1.00			
	$6000 & above	1.77	0.95			
Psychosocial	$499 & below	1.93	0.83	5.96	7	NS
	$500 - $999	1.94	0.82			
	$1000 - $1999	1.82	0.83			
	$2000 - $2999	1.89	0.81			
	$3000 - $3999	2.04	0.78			
	$4000 - $4999	2.44	1.07			
	$5000 - $5999	1.40	0.40			
	$6000 & above	1.68	1.03			
State of Society	$499 & below	1.71	0.79	8.96	7	NS
	$500 - $999	1.72	0.82			
	$1000 - $1999	1.74	0.81			
	$2000 - $2999	1.79	0.93			
	$3000 - $3999	2.01	0.89			
	$4000 - $4999	1.80	0.78			
	$5000 - $5999	2.80	0.89			
	$6000 & above	1.35	.040			
Financial Pressure	$499 & below	1.75	0,92	7.29	7	NS
	$500 - $999	1.74	0.87			
	$1000 - $1999	1.81	0.90			
	$2000 - $2999	1.71	1.05			
	$3000 - $3999	1.58	0.77			
	$4000 - $4999	1.60	0.83			
	$5000 - $5999	1.46	0.69			
	$6000 & above	1.00	0.00			
Biological	$499 & below	1.60	0.84	6.43	7	NS
	$500 - $999	1.47	0.71			
	$1000 - $1999	1.66	0.75			
	$2000 - $2999	1.71	0.75			
	$3000 - $3999	1.73	0.79			
	$4000 - $4999	2.06	0.92			
	$5000 - $5999	1.80	0.76			
	$6000 & above	1.47	0.63			
Socialization	$499 & below	1.38	0.71	2.41	7	NS
	$500 - $999	1.43	0.67			
	$1000 - $1999	1.56	0.84			
	$2000 - $2999	1.57	0.89			
	$3000 - $3999	1.79	1.06			
	$4000 - $4999	1.40	0.59			
	$5000 - $5999	1.86	1.04			
	$6000 & above	1.43	0.74			

Summary of effect of patients' demographic factors on their beliefs

The prediction regarding gender differences in endorsing beliefs within the "Financial pressures" and the "State of society" categories was supported.

One of the two predictions related to ethnic differences was supported; Malay patients believed significantly more than Chinese patients that supernatural factors caused their illness. The prediction that Chinese patients will endorse intrapsychic causes significantly more than Malay patients was not supported. Chinese patients, however, endorsed state of society, biological and socialization categories significantly more than Malay patients.

No significant difference was found between educational levels in relation to causal beliefs when they were divided into higher and lower educated groups.

SES was shown to have some influence on the causal beliefs of the patients, quite consistent with the prediction.

II Patients' Treatment beliefs

Factor analysis of treatment beliefs (Prediction 4.2.1)

On factor analysis of the patients' responses to the treatment methods, 3 factors emerged with eigenvalues greater than 1. These accounted for 67.07% of the total variance (refer Table 4.11 below).

The rotated component matrix as shown in Table 4.12 indicates that Factor 1 comprised the 3 items from the original psychosocial category together with 1 from the original professional mental health care category with factor loadings ranging from 0.523 to 0.841. "Professional counselling" was perceived more as a psychosocial treatment than professional mental health treatment. The 2 items from the professional mental health care category had very high factor loadings of 0.926 and 0.939 and made up Factor 2. Factor 3 comprised 3 supernatural methods with factor loadings ranging from 0.608 to 0.839. Hence, Prediction 4.2.1 was not fully supported.

The allocations of the 9 treatment items into the 3 categories are shown in Table 4.13 below.

Table 4.11

Total variance explained for the 9 items of treatment approaches
for
Patients' Beliefs Questionnaire

Total Variance Explained

		Initial Eigenvalues[a]			Rotation Sums of Squared Loadings		
	Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
Raw	1	3.861	31.063	31.063	3.302	26.567	26.567
	2	2.485	19.996	51.059	2.628	21.141	47.708
	3	2.032	16.350	67.409	2.449	19.701	67.409
	4	.986	7.930	75.339			
	5	.857	6.898	82.236			
	6	.795	6.400	88.637			
	7	.627	5.047	93.683			
	8	.513	4.131	97.814			
	9	.272	2.186	100.000			
Rescaled	1	3.861	31.063	31.063	2.366	26.286	26.286
	2	2.485	19.996	51.059	1.959	21.764	48.050
	3	2.032	16.350	67.409	1.712	19.020	67.071
	4	.986	7.930	75.339			
	5	.857	6.898	82.236			
	6	.795	6.400	88.637			
	7	.627	5.047	93.683			
	8	.513	4.131	97.814			
	9	.272	2.186	100.000			

Extraction Method: Principal Component Analysis.

a. When analyzing a covariance matrix, the initial eigenvalues are the same across the raw and rescaled s

Table 4.12

Rotated component matrix for the 9 items of treatment approaches
for
Patients' Beliefs Questionnaire

Rotated Component Matrix [a]

	Raw			Rescaled		
	Component			Component		
	1	2	3	1	2	3
T1	.945	.026	.251	.772	.021	.205
T2	.323	.073	.683	.288	.065	.608
T3	.044	1.120	-.036	.037	.939	-.030
T4	-.178	-.006	1.046	-.143	-.005	.839
T5	.046	1.048	-.016	.041	.926	-.014
T6	.585	.513	.247	.523	.458	.221
T7	.919	.052	-.104	.812	.046	-.092
T8	.183	-.041	.851	.155	-.035	.720
T9	1.024	.043	.165	.841	.035	.135

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

Table 4.13

Patients' Beliefs Questionnaire – Treatment approaches

Allocation of the 9 treatment approach items after factor analysis into the 3 factors

Categories	Original item number	Treatment methods
Factor 1 Psychosocial	1 6 7 9	Talking to my parents, a relative or friend Getting professional counselling Getting love, care and support from people Teaching my family to understand and to deal with my problems better.
Factor 2 Professional mental healthcare	3 5	Getting treatment from Woodbridge Hospital or clinic Taking medicine given by a doctor
Factor 3 Supernatural	2 4 8	Praying to God and or consulting a religious healer Seeing a bomoh/temple medium/faith healer Taking traditional medicine

Ranking of the 3 treatment beliefs categories: (Prediction 4.2.2)

Of the 3 categories of treatment approaches, the professional mental health care category was ranked highest by the patients. Ranked second was the psychosocial category and third was the supernatural treatment category. Hence Prediction 4.2.2 that psychosocial treatment approaches will be most highly ranked was not supported.

Repeated measures analysis of variance showed a significant difference in the way patients responded to these 3 categories of treatment beliefs ($F=27.045$; df 2, 458; $p<0.001$). Refer to Table 4.14 below for the means and standard deviations of these 3 categories. Post Hoc analysis using Wilcoxon signed ranks test showed that the Professional mental health care treatment category was endorsed significantly higher than the Psychosocial treatment category which was in turn endorsed significantly higher that the Supernatural treatment category.

Table 4.14
Means & SDs of the 3 categories of patients' treatment beliefs (N=230)

Category of treatment beliefs	Mean	SD	Minimum	Maximum
Professional mental healthcare	3.01_a	1.10	1	4
Psychosocial	2.71_b	0.90	1	4
Supernatural	2.40_c	0.88	1	4

Means followed by different subscripts differ significantly ($p<0.05$)

Demographic factors and patients' treatment beliefs: (Predictions 4.2.3-5)

The means, SDs and test statistics of patients' treatment beliefs in relation to demographic factors are shown in Table 4.15 below.

Gender

As indicated in Table 4.15, no significant difference was found between male and female patients in their beliefs about treatment methods.

Ethnicity

Prediction 4.2.3 that Chinese patients will believe significantly more in psychosocial modes of treatment than Malay patients was supported (refer to Table 4.15). The prediction that Malay patients will endorse significantly more supernatural treatment approaches compared to Chinese, however, was not supported.

Educational level

In terms of educational level, the prediction that there will be a significant difference in the way higher and lower educated patients endorse treatment beliefs was partially supported (refer Table 4.15). A significant difference was found with lower educated patients showing significantly more ($p<0.05$) confidence in professional mental health care treatment approaches than higher educated patients, which was the reverse of what was predicted (4.2.4). The prediction that lower educated patients will endorse more supernatural and psychosocial treatment approaches was not supported.

Table 4.15

Patients' demographic factors & treatment beliefs: gender, ethnic & educational level differences

Category	Groups	Mean	SD	Mann Whitney U	p
Professional mental health care	Male	3.15	0.99	5680.00	NS
	Female	2.84	1.12		
Psychosocial	Male	2.80	0.83	5829.00	NS
	Female	2.58	0.97		
Supernatural	Male	2.39	0.86	6494.50	NS
	Female	2.39	0.91		
Professional mental health care	Chinese	3.08	1.08	6007.00	NS
	Malay	2.92	1.12		
Psychosocial	Chinese	2.85	0.87	5209.50	**
	Malay	2.53	0.91		
Supernatural	Chinese	2.36	0.88	6190.00	NS
	Malay	2.44	0.88		
Professional mental health care	Higher educated	2.70	1.18	3625.50	*
	Lower educated	3.09	1.06		
Psychosocial	Higher educated	2.88	0.88	3738.50	NS
	Lower educated	2.66	0.90		
Supernatural	Higher educated	2.32	0.99	4165.50	NS
	Lower educated	2.41	0.85		

* $p<0.05$
** $p<0.01$
*** $p<0.001$

Socio-Economic Status (SES)

No significant difference was found in the way the eight income groups endorsed the treatment beliefs (largest χ^2=0.282, df=7, p>0.05). Hence Prediction 4.2.5 that patients in the lower SES would endorse significantly more supernatural treatment methods was not supported.

Causal beliefs and treatment beliefs: (Prediction 4.2.6)

There were significant positive correlations between categories of beliefs and treatment approaches confirming Prediction 4.2.6, but the correlation were generally rather low. There was a significant positive correlation between supernatural beliefs and supernatural treatment approaches (rho=0.33, p<0.001), between biological beliefs and professional health care treatment approaches (rho=0.30, p<0.001) and also between intrapsychic beliefs and psychosocial treatment approaches (rho=0.28, p<0.001).

Duration of illness, causal beliefs and treatment beliefs: (Prediction 4.2.7)

Patients with longer duration of illness were expected to endorse significantly more biological causal beliefs but use of a nonparametric test of correlation showed that this was not supported (rho=-0.007, p>0.05). In fact, contrary to the prediction, a negative correlation was found indicating that the longer their duration of illness, the less they believed that their illness was caused by biological factors.

A significant positive correlation, however, was found between duration of illness and their believing in professional mental health care methods of treatment for their illness (rho=0.235, p=0.001).

Patients' responses to questions in Part III of the Questionnaire:

(Predictions 4.3.1 - 4.3.3)

Mann-Whitney U-tests showed that patients who responded with 'yes' (mean=2.24, SD=0.94, median=2.00) to the first question in Part III of the Beliefs Questionnaire (do you think you have a mental illness?) endorsed significantly more biological causal beliefs ($p<0.001$) than those who responded with 'no' (mean=1.45, SD=0.62, median=1.00), thus supporting Prediction 4.3.1.

In examining patients' responses to Questions 2 and 3, a significant association using cross-tabulation was found between these responses (Pearson's chi-square=7.15, odds ratio=2.2, 95%CI=1.2 to 3.8, $p<0.01$). Thus when patients felt that their psychiatrists did not respect their beliefs, they did report having significantly more problems taking the medication prescribed to them by the psychiatrists. This supports Prediction 4.3.2.

Using the Mann-Whitney U-test, it was shown that patients who responded with "yes" (mean=2.71, SD=1.20, median=3.00) to the fourth question in Part III of the Beliefs Questionnaire (did you consult a traditional or religious healer before seeking help from the hospital?) endorsed significantly more supernatural causal beliefs ($p<0.01$) than those who responded with "no" (mean=1.81, SD=1.12, median=1.00). Similarly, patients who also responded

with "yes" (mean=2.79, SD=1.20, median=3.00) to the fifth question in Part III of the Beliefs Questionnaire (if so, are you still getting treatment from a traditional or religious healer now?) endorsed significantly more supernatural causal beliefs ($p<0.01$) than those who responded with "no" (mean=2.32, SD=1.24, median=2.00) and those who responded with "yes" (mean=2.89, SD=1.19, median=3.33) to the sixth question in Part III of the Beliefs Questionnaire (do you think traditional medicine or religious healing can help you problems?) also endorsed significantly more supernatural causal beliefs ($p<0.001$) than those who responded with 'no' (mean=2.06, SD=1.17, median=1.67). Hence, Prediction 4.3.3 was supported.

As "unsure" responses to the 6 questions were very minimal, cases who responded "unsure" were not included in the analyses of the above.

Caregivers

IV Caregivers' causal beliefs:

Caregivers' beliefs about the causes of their relatives' schizophrenic illness were assessed using the Caregivers' Beliefs Questionnaire. The sum of their responses to items in each category was calculated and divided by the number of items in each category. The 7 categories of the caregivers' causal beliefs were ranked using these means according to the strength of their endorsement.

The ranking of caregivers' beliefs are shown in Table 4.16 in descending order together with the means and standard deviations. It was found that

caregivers believed most strongly that the patients' illness was caused by Intrapsychic factors. Ranked second was Supernatural causes followed consecutively by factors caused by the State of Society and Psychosocial factors. In fifth rank was Biological causes with Socialization and Financial factors ranked sixth and seventh respectively. Hence Prediction 4.4.1 that caregivers will believe most in psychosocial factors as the main cause of the schizophrenic disorder has been shown to be unsupported.

Table 4.16
Means & SDs of the 7 categories of caregivers' causal beliefs (N=67)

Category of causal beliefs	Mean	SD	Minimum	Maximum
Intrapsychic	2.86_a	0.72	1	4
Supernatural	2.64_b	0.89	1	4
State of Society	2.19_c	0.78	1	4
Psychosocial	1.94_d	0.73	1	4
Biological	1.88_{cd}	0.99	1	4
Socialization	1.78_d	0.86	1	4
Financial Pressures	1.64_d	0.89	1	4

Means followed by different subscripts differ significantly ($p<0.05$)

Repeated measures analysis of variance showed a significant difference in the way caregivers responded to these 7 categories of causal beliefs ($F=23.556$; df 6, 408; $p<0.001$). Refer to Table 4.16 below for the means of these 7 categories. Post Hoc analysis using Wilcoxon signed ranks test showed that the "Intrapsychic" and "Supernatural" categories were endorsed significantly higher than any of the other categories ($p<0.001$) and the "Socialization" and "Financial Pressures" categories were least endorsed.

Mann-Whitney U test showed that Chinese and Malay caregivers did not differ significantly in the way they endorsed the 7 categories of beliefs (refer to Table 4.17 below). The prediction that Malay caregivers will endorse significantly more supernatural causes than Chinese caregivers was thus not supported; in fact Chinese attributed slightly more blame to supernatural causes than did Malays. Chinese caregivers did not endorse significantly more intrapsychic causes although they did blame intrapsychic factors slightly more than the Malay caregivers.

Table 4.17

Caregivers: Causal beliefs & ethnic differences

Category	Groups	Mean	SD	p
Intrapsychic	Chinese	2.95	0.68	NS
	Malay	2.69	0.76	
Supernatural	Chinese	2.64	1.78	NS
	Malay	2.63	1.09	
State of Society	Chinese	2.05	0.77	NS
	Malay	1.96	0.82	
Psychosocial	Chinese	1.85	0.61	NS
	Malay	2.09	0.90	
Biological	Chinese	1.99	1.12	NS
	Malay	1.67	0.67	
Socialization	Chinese	1.79	0.82	NS
	Malay	1.76	0.95	
Financial Pressures	Chinese	1.60	0.89	NS
	Malay	1.71	0.91	

V Caregivers' treatment beliefs:

Based on the means of the 3 categories of treatment methods as endorsed by caregivers, professional mental health care approaches were ranked first, with psychosocial methods second and supernatural methods third. Table 4.18 below shows the means and standard deviations of these 3 categories.

Repeated measures analysis of variance showed a significant difference in the way caregivers responded to these 3 categories of treatment beliefs ($F=84.765$; df 2, 136; $p<0.001$). Refer to Table 4.18 below for the means of these 3 categories. Post Hoc analysis using Wilcoxon signed ranks test showed that Professional mental health care treatment category was endorsed significantly higher than psychosocial and supernatural. Supernatural treatment methods were least highly endorsed.

Mann-Whitney U test showed that Chinese and Malay caregivers did not differ significantly in the way they endorsed the 3 categories of beliefs (refer to Table 4.19 below). Malay caregivers did not believe significantly more in supernatural methods of treatment; in fact the supernatural mean for Chinese caregivers was very slightly higher than that of Malay caregivers. The Chinese caregivers also did not endorse significantly more psychosocial methods of treatment than the Malays although the mean for this category for the Chinese was slightly higher than that of the Malays.

Table 4.18
Means & SDs of the 3 categories of caregivers' treatment beliefs (N=67)

Category of treatment beliefs	Mean	SD	Minimum	Maximum
Professional mental healthcare	3.66_a	0.56	1	4
Psychosocial	2.92_b	1.12	1	4
Supernatural	2.16_c	0.73	1	4

Means followed by different subscripts differ significantly ($p<0.05$)

Table 4.19

Caregivers' treatment beliefs & ethnic differences

Category	Groups	Mean	SD	p
Professional mental health care	Chinese	3.62	0.625	NS
	Malay	3.73	0.44	
Psychosocial	Chinese	2.95	1.28	NS
	Malay	2.86	0.79	
Supernatural	Chinese	2.19	0.80	NS
	Malay	2.11	0.60	

Between patients and caregivers: (Predictions 4.5.1 & 4.5.2)

Causal beliefs

The prediction (4.5.1) that patients' beliefs will correlate highly with their caregivers' beliefs was only partially supported. Out of the 7 categories, only 2 categories were significantly correlated: the Supernatural category (rho=0.32, $p<0.01$) and the Biological category (rho=0.309, $p<0.05$). There was in fact a negative correlation in the Intrapsychic category.

Treatment beliefs

There was no significant correlation between patients' and caregivers' beliefs about treatment approaches, which rendered Prediction 4.5.1 was only partially supported.

Wilcoxons signed ranks test showed that caregivers endorsed significantly more Intrapsychic causal beliefs ($Z=-3.697$, $p<0.001$) and more professional mental health care methods of treatment ($Z=-4.925$, $p<0.001$) than patients did. Patients, however, endorsed significantly more Psychosocial causal beliefs ($Z=-1.998$, $p<0.05$) and supernatural treatment methods ($Z=-2.978$, $p<0.01$) than caregivers. There was no significant difference between patients' and caregivers' causal and treatment beliefs in the other remaining categories.

The Wilcoxon signed ranks test was used as the patient and caregiver are relatives, from the same family and can thus be considered related samples.

Part III of the Questionnaire

Analysis of the responses to the questions in Part III of the Questionnaire, showed that responses to the choice "unsure" were very low in all 6 questions. Hence, only responses to the choices "yes" or "no" were taken into account when analysing the responses to these questions.

Sixty-two patient-caregiver pairs responded either "yes" or "no" to Question 1. The binomial test was used to test Prediction 4.5.2, taking into consideration patients' and caregivers' responses to Question 1 at test proportion equal to 0.25. It was found that of the 4 groups of patient-caregiver pairs, 30 out of the 62 pairs (48%) of patients disagreed with their caregivers in that the patients themselves believed they were not suffering from a mental illness whereas their caregivers believed that the patients were suffering from a mental illness (refer to Table 4.20 below). This was highly significant ($p<0.001$) when compared to the other 3 groups. Hence, Prediction 4.5.2 has been supported.

Table 4.20

Tabulation Table using the Binomial Test for Question 1 of Part III of the Beliefs Questionnaire

		Caregivers		
		Yes	No	
Patients	Yes	11	3	
	No	30	18	
				62

Table 4.21 below shows the percentage of patient and caregiver responses to the 6 questions in Part III of the Beliefs Questionnaire. Both patients and caregivers were not too dissimilar in their responses, except to Question 1 which has been discussed above. Most of the patients and caregivers both felt that the psychiatrists respect and understand their beliefs about the causes of their problems and admission to the mental institution. Both patients and caregivers also felt that there were no problems in taking the medication given by the psychiatrists.

Seventy percent of the patients claimed that they had consulted a traditional or religious healer prior to seeking help for their problems from psychiatric services and about the same percentage of caregivers concurred. A vast portion of both patients and caregivers denied that they were seeking such treatment currently although almost 50% of both patients and caregivers still believed that it could help them.

Table 4.21
Patients' & caregivers' responses to Part III of the Questionnaire

	Patients		Caregivers	
	n	%	n	%
Mental illness:				
Yes	74	32.2	40	61.1
No	148	63.9	21	29.9
Unsure	8	3.9	6	9
Doctors respect:				
Yes	139	60.9	50	74.6
No	82	36.1	16	23.9
Unsure	9	3	1	1.3
Medication problems:				
Yes	84	37.4	35	50.7
No	143	61.7	31	47.8
Unsure	3	0.9	1	1.5
Consulted healer:				
Yes	160	70	48	71.6
No	69	29.5	19	28.4
Unsure	1	0.5	0	0
Still consulting:				
Yes	56	24.3	10	14.9
No	174	75.7	57	85.1
Unsure	0	0	0	0
Believe in healer:				
Yes	103	45.7	29	43.3
No	121	52.6	37	55.2
Unsure	6	1.7	1	1.5

Discussion

Need for a culturally relevant questionnaire: rationale

Some knowledge and understanding of patients' explanatory models for their schizophrenic illness can enable mental health caregivers and policy makers to plan more effective treatment programmes for these patients. In order to assess and gain some understanding of their explanatory models and their beliefs about treatment approaches that they will accept and comply with, there needs to be a culturally relevant instrument to access these beliefs. Hence the Patients' Beliefs Questionnaire was developed for this purpose.

As Singaporean caregivers are often involved in the choice of treatment and also have a strong influence over patients' compliance with the treatment regime, knowing about the caregivers' beliefs about the causes and treatment methods is also important; thus a caregivers' version of the Patients' Beliefs Questionnaire was also developed.

Each questionnaire consisted of three parts: Part I assessed beliefs about the causes of schizophrenia, Part II explored beliefs about treatment approaches and Part III addressed general personal perception and attitudes towards cultural issues.

Development of the Patients' Beliefs Questionnaire

The Questionnaire was developed based on the prevailing beliefs of a sample of the Singaporean lay population. The 30 causal beliefs elicited from the lay population were categorised into the 6 factors that Angermeyer &

Matschinger (1994) proposed for their lay study in Germany, comprising Part I of the Questionnaire. When this Questionnaire was administered to a cohort of patients with schizophrenia, more than 80% of the cohort strongly disagreed with 4 of the beliefs, for which reason these 4 items were removed. Although these items were strongly endorsed by the lay population, it appears that the patient population seems to regard these items as not responsible for their illness – the influence of television, "something" ingested, "something" that happened to the mother while pregnant with the patient ,and having no religious affiliations or the influence of wrong religious practices.

The removal of item 25 on religion requires further discussion. It was previously part of the supernatural category but it appears that the patient population in this study did not consider religion as something supernatural. This was noticed by the investigator in the course of administering the questionnaire. On several occasions when subjects were asked about their low rating for item 25 while other items in the supernatural category had been strongly endorsed, they expressed that religious and supernatural causes were not related. It seems that religious causes were perceived as divorced from supernatural causes and regarded as quite separate entities. It was also observed that patients, especially Muslim patients, were generally very reticent and guarded when talking about religion. It is speculated that there is an element of superstition that something bad may happen to them if they were to blame their religion for their affliction. Moreover, consistent with the unspoken and understated conflict amongst the Muslims between magical beliefs and practices (as advocated by

the *bomoh*) and 'true' religious beliefs and rituals (by the *kadi/imam* ie the holy man of the mosque), many of the Muslim patients in the study were reluctant to elaborate much on their beliefs about such possible causes. This guardedness was also noticed amongst the Chinese patients but to a much lesser extent; they were certainly much more forthcoming in blaming bad spirits, unhappy spirits of their deceased ancestors, not offering sufficient sacrifices to their deceased ancestors, witchcraft, "charms" or "spells", black magic and too much involvement in religious rituals or chanting of the holy Buddhist scriptures as causes of their illness; only on a few occasion did Chinese patients say that it is not good to talk bad about these spirits in case of offending them. This openness was quite in contrast to the highly guarded young Chinese lower educated females in the lay population sample as discussed in Chapter 3.

Perhaps for future purposes, the concept of religion should be accorded a separate category or phrased differently as religion is perceived by the local population and the Singaporean society to be an important aspect of life.

Part I: Patients' Causal Beliefs

The 7 categories of the Beliefs Questionnaire

The prediction that the remaining 26 items will fall into the 6 factors proposed by Angermeyer & Matschinger (1994) was mainly supported with some minor differences. This is not totally unexpected or undesirable as beliefs are unique to each society or population under study. Compared to the German sample, the Singaporean patient population perceived that 7 factors contributed

to their schizophrenic illness; most of the 6 factors remained the same except for the addition of an extra factor - financial pressures. As Singapore is not a welfare state, money problems and financial matters may be perceived to play a significant role in causing stress and mental problems. Moreover, as the Chinese make up the majority of the Singaporean population, this "financial" category could have been contributed primarily by the Chinese people's inherent pragmatic emphasis on material wealth.

Factor 1: Socialization category

Factor 1 had 3 out of the 4 items that were in the original Socialization category which suggests that this category is fairly robust in its internal consistency. The Singaporean patient population seems to have a slightly different perception about socialization compared to the German lay population. While the Germans have included growing up in a broken home as a part of the socialization process, the Singaporeans have considered this as part of the psychosocial/interpersonal relationship difficulties factor. The Singaporeans have instead focused solely on upbringing and parenting styles. Phillips et al's (2000) Causal Model Questionnaire for Schizophrenia (CMQS) had only one socialization item (out of 45 folk explanations for schizophrenia) pertaining to parenting style - bad methods of upbringing. This item was within the 'social environment' category and was given a weighted importance ranking of 11 out 36 items endorsed by the sample of relatives to which the CMQS was administered.

Factor 2: State of Society category

Factor 2 has incorporated most of the items related to societal demands and pressures. This is fairly similar to Angemeyer & Matschinger's (1994) State of Society category except that their category focused on the decay and loss of traditional values and on the exploitation by society whereas the category in the present study addressed more the consequences of this 'decay'.

Factor 3: Psychosocial category

The Singaporean patients' perception of psychosocial problems (Factor 3), was fairly similar to Phillip et al's (2000) "social environment" and "interpersonal relationships" categories. These psychosocial problems included life events, interpersonal relationship difficulties and a sense of loneliness (akin to the French expression of *"anomie"* for a sense of dislocation and isolation as discussed by Littlewood & Lipsedge [1997]) and neglect by family and friends. Some of these items were partly from the original psychosocial category and also from the original state of society category. The German study had similar items in their psychosocial category. Items in this category, particularly 'stress', were perceived by the Hong Kong Chinese lay, patient and caregiver population as the main cause of schizophrenia (Chung et al, 1997).

Factor 4: Intrapsychic category

The Intrapsychic Factor (Factor 4) had all the 5 items that were originally in the intrapsychic category suggesting robust internal validity of these items.

Phillip et al's (2000) cohort of Chinese relatives have ranked highly such intrapsychic factors like "personality problems" and "thinking too much" as causes of schizophrenia while ranking other external factors like "substance misuse" and "low educational level" much lower. Among the 6 categories presented to the German lay population (Angermeyer & Matschinger, 1994) the intrapsychic category was ranked third after psychosocial stress and biological factors. German relatives ranked this category as the main cause of schizophrenia (Angermeyer & Matschinger, 1996). Singaporean patients have ranked the intrapsychic category second among the seven categories while Singaporean caregivers have ranked it first. In other words, the German lay population and relatives, Chinese relatives in China and the Singaporean patient population and their caregivers seem to feel that the afflicted person's weaknesses and flaws in character play a major role in causing the illness.

In a subsequent analysis of data of the lay beliefs study using a new and apparently more reliable methodological approach, Matschinger & Angermeyer (1996) came up with 15 causal items of which "weak mental constitution" was cited as the second most major cause of schizophrenia. Hence, there seems to be a consistent attribution of causal factors to the patients' inherent weakness of character by patients, relatives and lay people.

Factor 5: Supernatural category

As discussed above, religion was perceived by the present patient cohort not as belonging to the supernatural category. With its removal, the remaining 3 items of the original supernatural category (pertaining to black magic, "charms" and evil spirits) were very robust in their internal consistency with high factor loadings. The fact that Malay patients attributed significantly more blame to such supernatural beliefs than Chinese patients indicates that this category has a strong influence on the Malays.

Western, industralized nations (Germany, for example) seem to consider supernatural causes as unimportant as evidenced by only the "tiny minority" who traced the schizophrenic disorders to the influence of supernatural powers including God's will, witchcraft, possession by evil spirits, zodiac sign or horoscope (Angermeyer & Matschinger, 1994). The German lay population ranked this category sixth and last. The Chinese in China do not seem to place much importance on spiritual causes either; only 'spirit possession' was ranked relatively higher at 12th place, while other spiritual factors like fate, effect of previous lives and geomancy were ranked rather lowly.

The influence of supernatural factors was, however, strongly evident in a nearby Islamic country, Malaysia. In Razali et al's (1996) study, about 53% of a sample of patients in a north-eastern state which has a high percentage of Malays attributed their illness to supernatural agents and believed that the best treatment approach could be provided by *bomoh* (Malay traditional healers). In their study, they found that more than 80% of their sample of psychiatric patients

had consulted a *bomoh*. The majority of their patients had visited two to five *bomohs* who have been known to reinforce the deep-seated cultural notion that mental illness is caused by supernatural forces in those who seek treatment from them. *Bomohs* have also been known to advise patients to stop the hospital medication and continue only with their traditional medicine (Razali & Yahya, 1995).

Although Singapore is in the transitional stage of moving into a developed nation status, many cultural and religious beliefs about supernatural influences and practices are still present and they tend to die hard. This was evidenced by the results of Kua et al's (1993) study in which over a third of their sample of patients attending the psychiatric unit of a general hospital had consulted a traditional healer before seeking treatment from the hospital. It appears that the Western influences and the rapid development of Singapore which are so evident in the prevailing society have not greatly altered the concept of mental illness among the majority of the Singaporean patient population, their caregivers and even perhaps, to a certain extent, the lay population.

Factor 6: Financial Pressures category

Factor 6 (Financial Pressures) is a new category peculiar perhaps to Singapore. Singaporeans have grown up in a highly competitive environment, in a nation that has hardly any natural resources and depends mainly on the productivity of its citizens to generate revenue and income. Given such a situation and the fact that the people of Singapore comprises mainly immigrants,

the nation has indeed progressed by leaps and bounds owing to the industry and conscientiousness of its people. The result is that the core values of its population are based to a large extent on material wealth and comfort. Hence, when such comforts are lacking, the individual is likely to be resentful and dissatisfied with life and would feel a great deal of pressure to attain a state of material well-being. Such pressures have been believed to cause mental illness and psychotic symptoms. This category was, however, ranked fairly lowly, in fifth position, suggesting that although perceived as a causal factor, such financial pressures do not feature very importantly.

It is interesting to note that Angermeyer & Matschinger's (1994) and Matchinger & Angermeyer's (1996) lists of possible causes of schizophrenia did not include any items pertaining directly to financial or money problems, but only obliquely in terms of unemployment. Neither was this issue addressed in Chung et al's (1997) study. Phillips et al's (2000) CMQS, however, did have one out of 45 folk explanations mentioning 'financial difficulties' which was given a relatively high ranking of 7.

Factor 7: Biological categories

Biological causes (Factor 7) were quite frequently mentioned in most of the studies and also in the present study. These usually included hereditary factors, head injury, brain disease or damage, physiological reasons and physical illness. Factor 7 has incorporated all the items of the original biological category after removal of the original items 9 and 20.

Summary of the 7 categories

On the whole, most of the items have remained in their original categories except for those in the original Psychosocial and State of the Society categories. Two of the items from the original Psychosocial category pertaining to financial issues constituted 2 of the 3 items in the new Financial Pressures factor, the other being 'our society's high cost of living', originally from the State of Society category.

Patients seem to feel that accommodation problems are as a result of problems inherent in the State of the Society; demands and pressures of the society and work and study stress were also regarded as the fault of decay in the society rather than psychosocial problems attributed to the population themselves. The patients, however, felt that being isolated, neglected and alone with no support from family or friends was the fault of the people around them, and hence this item was included into the Psychosocial category.

Responses from the Singaporean patient population have indicated that the beliefs about causes of schizophrenia in Singapore are different from the beliefs of the German lay population which is not surprising. Although it cannot be a direct comparison, the evidence is present. The Singaporean patients believed there are 7 categories compared to the 6 categories postulated for the German population by Angermeyer & Matschinger (1994). Except for the financial pressures category which is new, and the psychosocial category in which items are of a different nature, the rest of the categories were quite similar ie the socialization, biological, supernatural and intrapsychic categories.

Psychosocial items have changed from the initial conceptualization of stress of work and demands of society to life events and relationship difficulties. These 7 factors are representative of the Singaporean lay and patient population as they have been derived from the lay population and tested on the patient population.

Patients' ranking of the 7 causal beliefs categories

Of these 7 factors, the fact that patients in this cohort have ranked the Supernatural category significantly higher than any of the other categories except for the Intrapsychic category strongly implies that the majority of patients believe that supernatural factors are the main cause of the schizophrenic illness. This suggests that long-standing cultural and religious beliefs still prevail despite modernization and influences from the West. The tendency to blame themselves and their inherent weakness in character for being responsible for the illness also reflects the strong Chinese tradition to be self-demeaning so as not to appear arrogant; this Intrapsychic category was significantly more strongly endorsed than the other remaining categories. This could, however, also be a consequence of low self-esteem for being afflicted with schizophrenia or of constant reminders by relatives.

The Biological category being one of the two least endorsed categories is suggestive that patients do not feel that their illness is due to biomedical reasons and perhaps are unlikely to believe in biomedical treatment methods. The fact that patients have ranked the socialization category seventh and last seems to

suggest that they attribute least blame to their parents, perhaps as a result of the influence of the age-old Asian value of filial piety.

Patients' demographic factors and causal beliefs

Male patients' significant attributions of causes to society and financial pressures compared to female patients could be a way of rationalizing away their failures and inadequacies in life. Males are generally expected to be breadwinners and income earners; to be unemployed especially in an Asian society is usually frowned upon. This is consistent with the explanation that different social roles and social role demands are placed on men and women in society in general (Birchwood & Jackson, 2001). It has been suggested that women with schizophrenia can continue to function adequately in domestic roles while men are expected to take up competitive paid employment outside the home (Salokangas, 1983).

The results suggest an interesting relationship between the two ethnic groups and their beliefs about the causes of schizophrenia. The prediction that Malay patients would believe significantly more in supernatural causes of their illness than the Chinese was supported. This is attributable mainly to their cultural background that emphasizes a great deal on the practice of black magic and the workings of good and bad spirits called *jinn*. Besides that, the religious teachings of the Muslims encourage them to accept afflictions as the "will of Allah" and as fate and not to feel angry about them. This acceptance also explains why caregivers of Malay patients are often more tolerant of their

mentally ill relatives. Although participants have claimed that religion is not connected in any way to supernatural practices, it would seem that as along as no direct reference is made to any connection, there is an underlying assumption that such spirits do feature in the religion.

Chinese patients, however, were predicted to attribute significantly more blame to intrapsychic causes ie they believe that their shortcomings and their inadequacies as a person are the cause of their illness. This prediction was made based on the fact that the Chinese have traditionally been brought up to blame the self for anything bad that happens to the person (Luk & Bond, 1992). This prediction, however, was not satisfied although the results did show that the Chinese did attribute more blame to these factors than the Malays. This suggests that Malay patients also do blame themselves for their schizophrenic illness but less so than the Chinese patients.

Significant ethnic differences were found in the socialization, state of society and biological categories. It is possible that because of the Malays' strong belief in supernatural causes, their endorsement of the remaining categories seems to have been "diluted". The significant difference could also be due to the fact that Singaporean Chinese prefer to place more blame on external factors in order to preserve "face".

There seems, so far, no earlier study with which the results of this study can be compared for ethnic differences or similarities. Previous studies on beliefs have only looked at one ethnic group eg Kua et al's (1993) study examined the help-seeking behaviours of only Chinese patients in the

Singaporean population, Phillips et al (2000) studied the causal beliefs only of Chinese patients and caregivers and Razali et al (1995) investigated the beliefs of only the Malays even though Malaysia's population is multi-ethnic and multi-religious.

When patients were sorted into higher and lower educated groups, educational level did not have a significant influence on the causal beliefs of the patients. One would have expected that people who are higher educated would be more exposed to and knowledgeable of recent scientific explanations and treatment for diseases or be more aware of what have been perceived as the "injustices'" of society and the "decay" of traditional values leading to stress which has been implicated to cause mental illness. The lower educated may be expected to be more accepting and easily influenced by simple folklore explanations which often encompass supernatural beliefs.

The prediction that patients from the lower socio-economic status (SES) will endorse significantly more supernatural causal beliefs was true to the extent that the lowest SES group had the highest mean for this category of causal beliefs. This prediction is not unlike Phillip et al's (2000) finding that caregivers in the rural areas of China endorsed more supernatural beliefs than those in the urban areas. Rural folk generally earn less than those living in urban areas and as SES is often related to education, those in the rural areas may also be less exposed to scientific knowledge, and more influenced by prevailing cultural beliefs and practices of their environment. Such folk may possibly also be more superstitious and easily persuaded or influenced. Although Singapore is a small

island state with not much of the truly rural environment, this state of affairs is applicable to Singaporeans within the lower SES groups as there are people who live in crowded small housing development board (HDB) accommodation and yet tend to be isolated from the rest of the population, sometimes even not sending their children to school because of financial constraints. It is this disadvantaged group that needs to be reached out to, especially those who suffer from physical or mental illnesses. Widespread public education is necessary to enhance the physical and psychological well-being of this section of the population.

Part II: Patients' Treatment Beliefs

The 3 categories of treatment beliefs

Three factors emerged as expected based on the 3 categories of treatment approaches suggested by the lay population. Except for one item (original item number 6 of the treatment approaches), all the items fell exactly into the 3 predicted factors. Patients seem to have perceived "professional counselling" as a friendly counselling/advice approach rather than a professional mental health care approach.

As it is important for patients to grasp the difference, this item would need to be reworded to convey a more succinct understanding of professional mental health care treatment approaches which would incorporate aspects of cognitive behaviour therapy, supportive and/or psychodynamic psychotherapy if appropriate, psychoeducation and family therapy. Thus even though a patient may be receiving person-oriented counselling or advice from family, friends or

counsellors, they may need and probably will benefit substantially more from professional mental health care psychotherapy approaches.

These treatment beliefs are quite different from those postulated by Angermeyer & Matschinger (1994). Many of their treatment approaches were based on helping the self through relaxation techniques and less conservative therapies like yoga and naturopathic cures although there were also suggestions of the usual professional mental health care approaches of drug treatment and psychotherapy. They also did not include any treatment methods using magical, cultural or supernatural approaches as one of their options.

With regard to treatment beliefs among the Singaporean patient population, the significant difference found in the psychosocial treatment approaches was due to Chinese patients endorsing more of these methods than the Malays. Even though Malay patients endorsed significantly more supernatural causal beliefs, they did not endorse significantly more supernatural treatment beliefs which did not seem very logical. This endorsement of professional mental health care treatment by both the Chinese and Malay patients over and above the other two treatment approaches, regardless of their causal beliefs, could be possibly due to patients' long-term exposure to psychiatric treatment; they may have just come to accept professional mental health care treatment (basically medication) as the more effective and sensible treatment for their illness.

The finding that lower educated patients believed significantly more in professional treatment may, on the one hand, be an indication of their

acquiescence with or deference to psychiatrists whom they perceive as highly educated and knowledgeable figures of authority. Higher educated patients on the other hand, being more knowledgeable and perhaps less acquiescent, may not hold psychiatrists in such high esteem, could have become more skeptical with time, or, having gained more insight into their illness and realization of the helplessness of their situation and could have given up believing in the effectiveness of medication. This would be fairly synonymous with the finding that some more educated and knowledgeable Americans have often exercised their rights to refuse medication simply because they are aware that they can refuse medication based on human rights and that there is no law that can force them to comply (Young et al, 1986).

Another interesting and related finding is that patients who have had a longer duration of the illness did not believe more in biological causal factors. This may be due to the reason that, having become more skeptical and more angry or disillusioned with their environment, they preferred to attribute more blame to themselves or the society. But patients who have been ill for longer duration would most likely have been in the psychiatric "system" for a longer period of time. This possibly accounts for them believing significantly more in professional treatment methods regardless of their beliefs about the causes of the illness in the first place. Medication may have been the only approach that has worked for them so far, or, simply because of the passage of time and exposure, they have just gotten used to the idea and convinced themselves to believe in professional mental health care treatment methods. These are just

speculations but they can be exploited, using perhaps cognitively-oriented therapy or motivational interviewing techniques to reinforce and strengthen any such "unfully convinced" beliefs.

Patients' ranking of causal and treatment beliefs

It seems rather inconsistent that while patients have ranked supernatural factors as the main cause of their illness, they believed that professional mental health care treatment approaches are the most effective method; the category of biological causes was ranked last but one, at the sixth position and supernatural treatment approaches were ranked third and last amongst the three treatment methods. Despite having been treated for many years with a biomedical approach, it seems that patients still prefer to attribute causes of their schizophrenic illness to the effects of evil spirit possession, "charms" and other supernatural factors, maybe because such explanations are more convenient, less threatening, more easily acceptable and perhaps in line with the prevailing cultural trend of thinking. Moreover, it is possible that these patients feel that beliefs in supernatural causes may offer more hope for a complete recovery through some divine intervention compared to the perceived bleak facts associated with mental illness. Yet at the same time, having been treated with such a biomedical model for many years, it only seems logical that they endorse significantly more professional mental health care methods simply because they are still receiving such treatment. Another possibility is that responders are endorsing what they perceived should be the acceptable view in a survey

conducted by an investigator they associate with the mental health profession. This, once again, could be reflective of the Asian culture. Herein, perhaps lies the inconsistency and conflict between causal and treatment beliefs.

The logic of the patients' reasoning may not always appear sound but the point is that, in trying to get them to be compliant with medication in order to reduce relapses, prevent eventual chronicity and improve their quality of life, their beliefs must be acknowledged and taken into account when planning psychoeducation and treatment programmes so that they are willing to accept and comply with them.

Part III: General Questions

Despite multiple relapses, readmissions and non-compliance with medication and follow-up treatment, most of the patients have indicated that they feel that their psychiatrists do respect and understand their beliefs. This may, however, only be an artifact and the truth may be that in an Asian society, doctors are perceived as authorities who know best and should be respected at all times. Asian patients are usually unwilling to directly oppose authority figures. Hence, these patients are likely to accord their attending psychiatrists who are perceived as wise, intelligent and knowledgeable authority figures the "due respect" even though they may not really believe in the effectiveness of the prescribed treatment and are in reality not taking their medication regularly.

Perhaps that is what contributes to the high non-compliance rate. As editor of his recent book on "Therapeutic compliance and Therapeutic Alliance",

Blackwell (1997) has collated a series of interesting articles addressing the essential contribution of therapeutic alliance to compliance. While focusing on the rights of patients almost to the exclusion of other considerations, he has urged psychiatrists to concentrate only on building up a sound therapeutic alliance with their patients to foster compliance. While such advice may be wise and applicable to situations in the West, it may not be as appropriate for Asian cultures. What is usually not emphasized in Western cultures is the role of the family in the management of the patient. A study by Tan et al (in press) on the Singaporean population showed that 90% of the patients live with their families compared to the typical situation in studies where about two-thirds of the sample of patients live on their own, an example being that of a recent multicentre Nordic study (Sorgaard et al, 2001). Tan et al also found that 40% of patients who attend psychiatric outpatient clinics are accompanied by a family member.

These findings suggest that in an Asian setting, compliance of the patient depends a great deal on the caregiver; the caregiver is in a highly influential position and hence should be accorded more recognition. This is consistent with the ancient Confucian philosophy and the typical Asian family set up which emphasizes the important roles of elders in the family and the involvement of family members in decision-making. Hence, contrary to Blackwell's focus on the patient, or perhaps as an adjunct to this focus, the family of the patient should be engaged in a therapeutic alliance with the psychiatrist as well to successfully foster an effective working relationship to ensure adequate compliance.

However, the present study found that beliefs and perceptions of patients and their caregivers hardly correlated. As discussed earlier, this could be a consequence of caregivers in Singapore being "over-burdened" by their intense "duty of care" to the patients. In fact, in a recent study by Seng & Bentelspacher (2001), families of patients with schizophrenia in Singapore reported a great burden of care and very high levels of stress looking after their mentally ill relatives. At the same time, Tan et al's (in press) patient sample reported poorer quality of life compared to a sample of physically ill patients, citing poorer satisfaction with family relationships and lower frequency of family activities and interaction as the main reasons. It evident, therefore, that family relationships of patients with schizophrenia are strained, which possibly accounts for the lack of synchrony between patients and caregivers beliefs and perceptions as found in this study.

It is possible sometimes that even though patients may truly believe in the treatment of their psychiatrists, caregivers may successfully undermine such beliefs. Razali & Yahya (1995) found that a significant number of family members actually discouraged their schizophrenic relatives from taking medication and going for follow-up appointments with the psychiatrists because they had more faith in the *bomohs*. The authors have purported that the *bomoh* is no doubt a good psychotherapist who can communicate more effectively with the patient than the medical practitioner. These *bomohs* seem to be fully aware of the influence of prevailing cultural beliefs on the patients and the importance of

family members in the management of the patients to convince the decision-maker to have greater confidence in their treatment.

When patients do not feel that their psychiatrists do genuinely respect their beliefs and yet are coerced probably by their caregivers to take their medication, the results have shown that these "unhappy" patients are likely to report significantly more problems with their medication. It is suggested that this could be a projection of the patients' dissatisfied state of mind; it is possible that when patients perceive that their feelings and beliefs have been devalued and not validated, they may project this sense of frustration in the form of problems with the medication. Hence, when dealing with patients who are compliant with their medication and yet constantly reporting innumerable problems with all sorts of side-effects, it is important for psychiatrists and also psychologists who are providing supportive psychotherapy to keep this point in mind. Inadvertently, there will be patients who are genuinely highly drug-sensitive and suffering from every known side-effect.

An interesting point to note is that about 70% of patients admitted that they have consulted traditional and religious healers previously (refer to Table 4.21). This is higher than Kua et al's (1993) study on Singaporean Chinese patient population. Kua et al's sample comprised psychiatric patients with various diagnoses whereas all the patients in the present study had a diagnosis of schizophrenia. This difference could have accounted for the higher percentage in the present sample. Investigation of ethnic differences in patients' help-seeking behaviour will be conducted and discussed in the next chapter.

Although a large majority claimed that they are no longer receiving traditional treatment, it is interesting to note that almost 50% of both patients and caregivers still maintain their belief that traditional treatment can help ameliorate their psychological and/or psychiatric problems.

Caregivers' causal and treatment beliefs

Caregivers have ranked intrapsychic factors as the significantly highest cause of their relatives' schizophrenic illness. It is perhaps conceivable that most of the caregivers have attributed blame to the patients themselves considering that this cohort of patients comprised mainly "chronic" patients who have relapsed frequently over the last two to twenty years and have had to be brought to the hospital time and again. The burden of care, as mentioned earlier, is heavy on the Asian caregiver.

The supernatural category was ranked significantly higher than all the other categories except intrapsychic. This could be seen as attributing causes of their relatives' illness to an "external" factor that is seen to be mysterious and beyond human comprehension, perhaps as a defense and coping mechanism. Socialization and financial factors, ranked second last and last (sixth and seventh respectively) involve more "internal" reasons and would imply that the caregivers, as parents, family members and providers have failed, in some way or another, in their duties. Thus as professional mental health caregivers, it is important to be aware of such sensitivities which may, to some extent, be cultural in nature when dealing with patients' caregivers. This awareness and sensitive attitude

could encourage a good collaborative working relationship with patients' caregivers and strengthen the therapeutic relationship.

This, however, does not mean that nothing should be done to modify causal beliefs when they contribute to non-compliance. Through patient and family psychoeducation, beliefs can be modified to the extent that encourages compliance without necessarily devaluing cultural and religious beliefs. When patients' and caregivers' beliefs are "synchronized", compliance would be more easily achieveable.

Consistent with patients' rankings of treatment approaches, caregivers have similarly ranked professional mental healthcare methods first and supernatural methods last. This "synergy" of treatment beliefs should be encouraged and reinforced. Unlike the patients, however, no significant difference was found in the way Chinese and Malay caregivers endorsed the 7 categories of causal beliefs and 3 categories of treatment methods.

Patients' and caregivers' beliefs

The significant difference between patients' and caregivers' endorsement of the intrapsychic category suggests that while patients do not blame themselves for the illness, caregivers attributed the illness to the patients' weakness of character. As expected, caregivers believed significantly more in professional mental health care treatment methods than patients. This suggests that they are likely to encourage the patients to be compliant with psychiatric treatment. This would be essential as patients have been shown to endorse

significantly more psychosocial causal beliefs and supernatural treatment methods.

Despite caregivers endorsing more professional treatment methods, yet they seem to be influenced to a certain extent by cultural practices. There seems to be a consistent "meeting of minds" when it comes to beliefs about traditional healers as indicated by the high percentage of both patients' and caregivers' confidence in traditional medicine despite disclaiming further visits. It would seem that as long as these beliefs are innocuous and do not interfere with compliance with medication and psychiatric treatment, it may not be necessary to deal with them actively. However, this could also be a call for psychiatrists and psychologists to collaborate with the practitioners of traditional medicine.

Limitations of this study

There are several shortcomings to the development of the Beliefs Questionnaire that need to be addressed. The Questionnaire with its 30 items was administered to a cohort of patients who have had a rather long duration and chronic course of the illness. Their responses may not be very accurate or representative owing to their cognitive deficits that may have affected their comprehension of the questions and may have limited their ability to really understand or express their own beliefs about the causes of their illness. It may or may not be due to this reason that the four items were found to be skewed and had to be removed. To obtain a more "cognitively accurate" response the Questionnaire should be rephrased to suit a non-patient population and

administered first to this group of subjects. The Patients' Beliefs Questionnaire could also be administered to a sample of patients who have been recently diagnosed with schizophrenia. Then one would have been more confident of the responses and the subsequent analysis of such data. Hence the next stage in further refining this Beliefs Questionnaire is to administer it to a larger sample of the lay population.

Furthermore, discarded items should be reconsidered, and if appropriate, rephrased to reduce any ambiguity (eg the item on religion) and incorporated into the Questionnaire. Certain other items should also be considered for incorporation from the original pool of lay causal beliefs.

As this is considered an exploratory factor analysis, a confirmatory factor analysis would be useful. Having readministered the reviewed and "refined" Questionnaire to a another sample of the lay population, it would then be administered to another cohort of patients with schizophrenia including outpatients and also to their caregivers using the appropriate version for each of these different groups.

The development of this present version of the Beliefs Questionnaire has, however, been useful and has provided some important insights into a cohort of patients' and some of their caregivers' belief system about the causes and treatment of schizophrenia. It is the first of its kind in Singapore and is a good starting point into developing a culturally relevant beliefs questionnaire for use in routine clinical practice in the country.

The present Beliefs Questionnaire was found to be brief and easy to complete yet comprehensive. It required on average about 15 minutes to complete. Its test-retest reliability has been shown to be good. Chinese and Malay translations of the Questionnaire have been made. With some further refinement, the Questionnaire can be used in routine clinical practice to assess the beliefs of patients. This will give a better understanding of the patients' belief system about the causes of their illness and assist in planning an individually-tailored psychoeducation and treatment package that will hopefully enhance compliance with medication and psychiatric treatment.

The Caregivers' version can also be used in assessing caregivers' beliefs to provide a better understanding of their beliefs system and to deliver appropriate support and encouragement for the caregivers as they continue to look after the patients. This Caregivers' Beliefs Questionnaire can perhaps be used in conjunction with another questionnaire (yet to be developed) that assesses the caregivers' coping strategies like the one developed by Magliano et al (1996).

Assessment using the non-patient population version of the Questionnaire can give a fairly accurate overview of the lay population's perception of schizophrenia. Public education programmes and forums can be tailored to address any misunderstanding and reinforce correct perceptions. Assessment of beliefs in these three areas are like looking for the three "micro" pieces of a puzzle; when fitted together, the end result can give on overall "macro" picture of the Singaporean society's perception of schizophrenia. Macro plans can then be

made for both the micro and macro management of the schizophrenic illness in Singapore.

CONCLUSION

The development of the Patients' Belief Questionnaire has provided for a culturally relevant instrument that can be used to assess and learn more about what patients in Singapore believe are the causes of their schizophrenic illness. The administering of such beliefs questionnaires to patients with schizophrenia and their caregivers has shown how they have ranked, according to their beliefs, the seven categories of causal factors in the aetiology of schizophrenia. Such knowledge about patients and their caregivers beliefs do have significant clinical implications in the management of these patients.

Analyses of the data obtained from patients and caregivers using the present Beliefs Questionnaire have provided certain information that can be helpful in increasing the understanding of the attitudes and help-seeking behaviour of patients and their caregivers. This would be relevant and useful to the planning of management, treatment and psychoeducation programmes.

Chapter 5

The influence of ethnicity and beliefs on the course and outcome of schizophrenia in Singapore

Introduction

Aim of this study

Chapter 5 describes the main study of this thesis, which is to investigate the influence of the ethnicity of patients and their causal beliefs on the course and outcome of their schizophrenic illness. The aim is to explore if patients' causal beliefs have a significant effect on the course and outcome of the patients' illness, and if there are any significant differences of the effect between the two main ethnic groups, the Chinese and the Malays in Singapore.

The Beliefs Questionnaire described in Chapter 4 was developed specifically for the purpose of this study. Based on the responses of the patients and their caregivers to the Questionnaire, the influence of causal and treatment beliefs on the course and outcome of the patients' illness will be examined. The effect of the patients' ethnicity, their caregivers' ethnicity and beliefs will also be explored.

As course and outcome are also affected by various other factors, these have also to be taken into consideration. Hence, this study further examines the extent to which these other factors influence course and outcome.

Despite the difficulties in measuring outcome in schizophrenia much research has been done in this area in an endeavour to remediate poor outcome and improve prognosis. Results of a study by Murray & Van Os (1998) showed that certain factors including male gender, family history of schizophrenia, structural brain abnormalities, adverse life events and tardive dyskinesia (one of the adverse side-effects to medication) were associated with poor outcome. Other studies have implicated various factors like non-compliance, lack of insight, demographic, social and family variables which will be discussed later in greater detail in this chapter.

Factors influencing course and outcome of schizophrenia

Several factors have been shown to predict outcome of patients with schizophrenia ie whether the patient gets better or worse. Kraepelin assumed that schizophrenia has a chronic deteriorating course (Warner, 1994) but Eugene Bleuler (1950) was slightly more optimistic of the outcome. Recent research has demonstrated that the course and outcome of schizophrenia are highly variable. The cohort of patients that Ciompi (1980, 1984) followed over a period of 30 years showed large variations in their outcome; 30 per cent of the cohort were considered fully recovered while a further 26 per cent were judged to have recovered partially. Other comparable outcome studies (M. Bleuler, 1978; Huber et al, 1975) obtained similarly variable results.

Economic and social conditions in industralized countries have been shown to affect outcome in schizophrenia. However, other factors like the levels

of psychopathology would also affect the outcome of the illness. Hence, Strauss & Carpenter (1972) and Strauss et al (1974) have argued that outcome should best be considered as an open system of related factors each influenced by the illness itself and by other variables.

Effects of gender and age

Gender has been shown to be predictive of outcome. The incidence of illness has been found to be higher amongst men than women despite the one-to-one sex ratio in the prevalence of schizophrenia (Goldstein, 1992).

Male patients generally have poorer outcome in terms of higher rates of rehospitalizations and shorter community tenure (eg Angermeyer, Goldstein & Kuhn, 1989). Results from studies on first episode schizophrenia are consistent with this effect of gender on outcome (eg Beiser et al, 1988; Geddes et al, 1994; Eaton et al, 1995). Males also tend to show greater downward drift with poorer social and occupational functioning (Marneros, Steinmeyer et al, 1989). One of the numerous explanations for the superiority in outcome of females over males is the protective function of the female hormone, oestrogen (Seeman, 1982); this applied not only to schizophrenia but across all psychiatric disorders. Gender differences in social outcome have also been attributed to the different social roles and social demands placed on men and women by the society.

Age of onset has been related to outcome with early age of onset being associated with more severe illness and poorer outcome in many studies (eg Soni et al, 1994). There were, however, some exceptions (eg Ram et al, 1992).

Premorbid adjustment

A robust predictor of the course and outcome of schizophrenia is the premorbid functioning of the individual prior to the onset of the illness (Birchwood & Jackson, 2000). Premorbid functioning includes work and school performance and the ability to establish and maintain friendships and sexual relationships. Various studies have found that individuals with good premorbid social competence and adjustment have better outcomes with less residual symptoms (Fenton & McGlashen, 1987; Strauss & Carpenter, 1972). There are, however, several confounding factors when relating premorbid adjustment to outcome, including gender (Harrison et al, 1996) and social support (Cole et al, 1995).

Social and family variables

Various researchers have tried to identify variables related to outcome. Strauss & Carpenter (1972) and Strauss et al (1974) demonstrated that social variables (eg work performance, social adjustment, duration of hospitalization) appear to be better predictors of outcome than symptomatology. Other investigators found that family variables like high expressed emotion (EE) and over-involvement are good predictors of relapse and poor outcome (Leff et al, 1982; Vaughn & Leff, 1976).

Untreated illness

Recent studies on early intervention in psychosis have provided some evidence that the duration of untreated psychosis (DUP) does adversely affect

the course and outcome of schizophrenia but the relationship currently remains circumstantial (Birchwood & Jackson, 2000). However, Jones et al (1993) have argued that significant psychosocial, educational and vocational development could be arrested during this crucial period of the individual's life, while others have argued that recovery in the long-term may be limited leading to poor long-term prognosis (McGlashan, 1988; Warner, 1994).

Cultural variables and the WHO studies on schizophrenia

Results of a series of studies initiated by WHO in 1967 have implied that "broad cultural factors" independent, to some extent, of initial illness severity or premorbid functioning do influence the course and outcome of the schizophrenic illness (Hopper & Wanderling, 2000). These studies – specifically, the International Pilot Study of Schizophrenia (IPSS, WHO, 1973) and the Determinants of Outcome of Severe Mental Disorders (DOSMD, Jablensky et al, 1992) – have consistently shown that persons clinically diagnosed with schizophrenia in "developed" or industrialized countries in the West had less favorable outcomes than their counterparts in "developing" countries (WHO, 1973; Jablensky et al, 1992). These results have been hailed as possibly "the single most important finding of cultural differences in cross-cultural research on mental illness" (Lin & Kleinman, 1988).

Hopper and Wanderling (2000) recently examined these rather provocative and long-standing findings using the results from the newly completed WHO collaborative project, the International Study of Schizophrenia

(ISoS) and confirmed that these results did withstand the test of time – 13 years since it was last reported. They concluded that these "broad cultural factors" did have a substantial effect on the course and outcome of the illness. Among the various explanations was the assumption that abnormal behaviour is perhaps better tolerated and accepted in developing countries. Davidson & Strauss (1992) have suggested that certain cultural factors do effectively allow for the sustenance and/or maintenance of a "functional sense of self" in persons afflicted with schizophrenia, while Nichter (1981) has proposed that just as there are native "idioms of distress" there may also be native "idioms of recovery".

Non-compliance

One of the main factors causing poor outcome is non-compliance with medication and psychiatric treatment which in turn has been shown to be influenced by certain demographic factors, cultural factors, incorrect beliefs about the causes of schizophrenia, comorbidity, lack of insight, side effects to medication and a negative attitude towards medication. Although there are patients who fail to respond adequately to medication, the great majority could avoid further relapse and rehospitalization by adhering to maintenance medication in the full prescribed dose. Kissling (1994) found that in routine clinical practice, only a proportion of patients on maintenance medication actually take it, resulting in a relapse rate of about 45%, which was almost three times greater than research studies would predict.

Compliance with medication can be measured by self-report and by the reports of others such as caregivers or family members. Pill counts have been widely used in the past despite the well-recognised potential for inaccuracy (Rudd, 1976; Kane, 1983; Pullar et al, 1989). This method is time-consuming, demanding of manpower and not suitable for inpatient studies where medication is administered by staff. Pill counting is also unsuitable for patients on depot medication and those with individually tailored regimes. Measuring drug levels in patients' blood is expensive, invasive and is not available for the full range of antipsychotics. Urine tests for a drug or its metabolite may overestimate compliance with antipsychotics with a long half-life (Churchill, 1985). Some researchers have relied on references to poor compliance in the patients' records. All these measures have their drawbacks and none of these methods assessing compliance is entirely satisfactory (Wright, 1993).

Factors influencing non-compliance

Non-compliant patients are defined as those who do not follow the treatment schedule and drug regimens prescribed to them by the doctors. Although research in non-compliance has mostly focused on taking prescribed medications, there are other ways in which patients do not follow the doctors' recommendations. These include taking non-prescribed drugs, missing appointments and defaulting altogether from follow-up (MacPhillips & Sensky, 1998).

Non-compliance with drug treatment is widespread and the incidence of non-compliance ranges from 15% to 93%, depending on the populations studied and the medical regimen used (Blackwell, 1979; Greenberg, 1984). Corrigan et al (1990) found that up to 80% of psychotic patients failed to comply. In the late 1970s, Haynes et al (1979) identified more than 200 factors causing non-compliance that had been measured in various studies.

Blackwell (1979) has suggested that non-compliance can be conceptualized as a complex interaction between various factors, and the risk factors contributing to the non-compliance are found within the patient, in the illness, the doctor, the treatment setting and in the medication itself.

Insight and attitude towards medication

Some authors have suggested that among the most powerful predictors of compliance amongst psychiatric patients are attitudes to treatment and insight into the illness (Marder et al, 1983; Kelly et al, 1987). Other authors have proposed that as a result of the illness, patients with schizophrenia seem to have an impaired capacity to cooperate with the treatment regimen due to poor insight (Young et al, 1998; Amador et al, 1994; David et al, 1995). Findings of the International Pilot Study of Schizophrenia (1973) conducted by the World Health Organization (WHO) reported that out of a sample of 811 operationally defined acute schizophrenics, 97% were without insight.

Demographic and social factors

Other possible determinants include ethnicity and gender of the patient (Sellwood & Tarrier, 1994), response to treatment, side-effects, symptoms of the illness itself and the treatment alliance between the patient and the health professional (Frank & Gunderson, 1990; Kemp & David, 1997). Symptoms like paranoid ideas (Haynes, 1979) and delusions about drug treatment or of grandeur (Van Putten, 1974; Van Putten et al, 1976) occurring in schizophrenic illness were also likely to be associated with poor compliance.

Within the patient, demographic factors like age, gender, socioeconomic status, religion and education have been found to affect compliance. In their retrospective study, Sellwood & Tarrier (1994) examined in-patient records of schizophrenic patients with reference to ethnicity, gender, age, number of admissions and duration of hospitalization over a 3-year period. They found that gender and ethnicity were significant predictors of extreme non-compliance. Conflicting results, however, have been presented by various other studies. While another study (Tunnicliffe et al, 1992) found that women were more likely to comply than men, other studies (Buchanan, 1992; Atwood & Beck, 1985) showed that gender of the patient had no value in predicting compliance.

Some other demographic factors have been shown to affect non-compliance. For example, lack of family support has been identified as an important predictor (Piatowska & Farnill, 1992) but marital status did not seem to be related to compliance (Tunnicliffe et al, 1992). The influence of other factors has been shown to be less clear cut. Low socioeconomic status (SES) has been

implicated (Young et al, 1986). However, patients in the United States who are in the high SES group are more likely to exercise their right to refuse medication. Buchanan (1992) and Atwood & Beck (1985) found no effect for age, but two other studies found that younger patients were less compliant (Tunnicliffe et al, 1992; Zito et al, 1985).

Hence, results of these studies have shown that there is great variance in the effect of demographic factors on non-compliance with medication.

Side-effects of medication

Antipsychotic medication is the most widely used treatment for schizophrenic disorders. Despite its established efficacy in psychotic disorders (Davis & Andruikaitis, 1986) and its proven effectiveness in the reduction of psychotic symptoms and number and length of hospital admissions when given on a maintenance schedule (Jolley et al, 1990), non-compliance is still very common. Antipsychotic medication has been associated with a wide range of side effects which may affect the individual's biological, psychological and social functioning and deter patients from taking their medication (Nelson, 1975).

The occurrence of side-effects to medication has been implicated as the most obvious cause of non-compliance (Diamond, 1985; Falloon, 1984). Patients with depressive symptoms which could either be a side-effect of the medication (Young et al, 1986) or a part of the psychopathology itself (Pan & Tantum, 1989) are less likely to adhere to a their prescribed antipsychotic medication. The

results of some studies, however, suggest that the role of side-effects in compliance may not be so important (Kelly et al, 1987; Marder et al, 1983).

Research in course and outcome

Most of these studies have addressed the influence of various factors on outcome measures but hardly any has addressed the possible effects of cultural beliefs on the course and outcome of the schizophrenic illness.

While some studies on schizophrenia in Singapore have investigated the patients' beliefs and help-seeking behaviours (Tan et al, 1981; Kua et al, 1993) and others have followed up on the outcome of a cohort of patients at 5, 10 and 15 years (Tsoi et al, 1993), course and outcome have not been explored in relation to patients' and their caregivers' beliefs. Differences in outcome amongst the ethnic groups have also not been explored. Such findings will provide a better understanding of patients' reasons for non-compliance with psychiatric treatment which in turn will have important clinical implications for the management of patients to improve compliance and reduce chronicity. Research on the influence of cultural factors has not been given much emphasis in a multi-ethnic society like Singapore.

Psychological Interventions

Besides treatment with medication, certain non-pharmacological interventions introduced as an adjunct to drug treatment have been shown to effectively change the course and outcome of the illness. Various studies have

reported the results of different types of non-pharmacological and psychological interventions and their effect on outcome. An essential component that underlies these psychological interventions is a positive therapeutic relationship which will enhance rapport building, trust, engagement and close collaboration between patient, caregivers (when applicable) and professionals. Some of the reported interventions are summarised below.

1. Compliance Therapy

Kemp et al (1996) showed that the Compliance Therapy they designed was a pragmatic method for improving compliance with drug treatment in psychotic inpatients, and its gains persisted for at least 6 months. The 18-month follow-up showed the effectiveness of compliance therapy in improving functioning and community tenure after an acute psychotic episode.

As Kemp et al (1996) have described it, compliance therapy borrowed extensively from motivational interviewing (Miller & Rollnick, 1991) which aims to help people change their behaviour "while avoiding the confrontation and problems of the usual doctor-patient interactions". Some modifications were made for use with psychotic patients, with therapists taking a more active stance, with more guided problem solving, and an increased educational component. It consisted of 4-6 sessions, each lasting 20-60 minutes, about twice a week. Patients were invited to review the history of their illness and to conceptualise their problems in the first two sessions. Discussion became more specific in the next two session, with the focus on symptoms and side-effects of treatment. The

pros and cons of medication were considered and the patient's ambivalence explored. The therapist also highlighted discrepancies between the patient's actions and beliefs, focusing more on adaptive behaviours. The stigma of taking antipsychotic medication was dealt with in the last two sessions and the emphasis was on the fact that taking medication is a freely chosen strategy to enhance quality of life. Patients were encouraged to be responsible for themselves and the value of maintenance treatment on medication was emphasized.

2. Drug Intervention & Counselling Programme

In a study conducted in a developing country, Razali & Yahya (1995) effectively used a drug intervention programme to improve medication compliance and lower relapse rates among non-compliant patients with schizophrenia. Medication regime was simplified as far as possible and counselling on the role and importance of medication was provided.

Being aware that relatives play an important role in compliance, the hospital pharmacist was tasked to conduct counselling sessions for inpatients in the presence of their key relatives shortly before discharge. Counselling started with an education component about schizophrenia using the vulnerability-stress model and the rationale for various treatments. The role of antipsychotic medication was then explained and patients and relatives were counselled to take a positive attitude towards medication. Clear instructions were given regarding dose, frequency and side-effects.

The authors made it a point not to belittle the role of the traditional healers as they were aware of the strong influence of cultural beliefs and supernatural and magical practices in that society. They did not disallow or discourage patients from consulting or continuing treatment by traditional healers as long as this did not interfere with medical treatment. To maintain a good rapport with patients, their beliefs in supernatural causes of mental illness were not challenged but incorrect attitudes were sensitively modified or corrected.

Finally the importance of the role of relatives in supervising medication and follow-up with psychiatric treatment was emphasized. Opportunities were given for patients and relatives to ask questions and clarify doubts. The sessions ended with a reminder about the date of the next follow-up appointment. Besides this psychological aspect of the intervention, the medication dosage of these patients was also simplified to just a daily or twice daily dose. Compliance with treatment was constantly reinforced by the attending psychiatrist at follow-up visits. At a one-year follow-up, Razali & Yahya (1995) found that the number of relapses in the control group was significantly higher than those who had undergone counselling and were receiving a daily or twice daily dose of medicine.

3. *Coping Strategy Enhancement (CSE)*

This therapeutic approach has been shown to be effective in improving the course of the schizophrenic illness by decreasing the patients' hallucinations and delusions (Tarrier, Beckett, Harwood et al, 1993). Using cognitive behavioral

techniques, patients were taught new coping strategies to deal with their psychotic symptoms by building on those that they found useful themselves. The form and content of the symptoms, the accompanying emotional responses and the accompanying distress were all assessed. Precipitating factors or antecedents were explored together with the patient's own coping strategies. The patient then had to rate each strategy in terms of its effectiveness. CSE systematically teaches the patient the use of effective strategies and encourages the patient to experiment with strategies which other patients have adopted.

Other cognitive behavioural techniques including relaxation and breathing exercises and the use of multiple coping strategies have been demonstrated to be effective in controlling or reducing the intensity of psychotic symptoms (Talbot, 1981; Tarrier, 1987; Lecompte, 1995; Fowler, Garety & Kuipers, 1995).

4. Cognitive Therapy

Cognitive therapy has been successfully used to reduce the intensity of delusional beliefs that have been responsible for the patient's distress and affected beliefs about the individual's self-worth (Kingdon & Turkingdon, 1994; Fowler et al, 1995; Chadwick, Birchwood & Trower, 1996). Principles similar to cognitive behavioural approaches are used but cognitive therapy focused exclusively on beliefs and ongoing patterns of thinking. The patient's beliefs and concerns are examined and gently challenged in a non-threatening manner with the aim of decreasing the strength of the delusional beliefs and replacing them with alternative beliefs. This can have significant impact in improving

compliance and eventually the course and outcome of the illness. Research trials (Kuipers, Garety, Fowler et al, 1997; Drury et al, 1996) have demonstrated that this approach has reduced the severity of psychotic symptoms and improved recovery. It has been proposed (Drury & Birchwood, 1994) that florid psychosis can be effectively reduced by engaging patients in interventions with a cognitive approach that that encourages acceptance and mastery of the illness in a environment that provides optimal stimulation and minimal stressful interaction.

5. Early intervention in relapse

Numerous studies have demonstrated that early intervention in the face of an impending relapse has effectively prevented or ameliorated the severity of a relapse (Jolley et al, 1990; Carpenter et al, 1990; Marder et al, 1994). There is often a prodrome that precedes a full-blown relapse and individual patients have a set of early symptoms peculiar to that individual which Birchwood, Smith & MacMillan (1989) have termed the "*relapse signature*". Other studies have confirmed that there is such a prodrome (Subotnik & Nuechterlein, 1988; Breier & Strauss, 1983) and this has been used in relapse prevention (Birchwood et al, 1992; Smith & Birchwood, 1990). This involves collaborating closely with the patients and their caregivers, educating them on psychosis, prodromes and intervention strategies, and emphasizing the importance of the responsibility on the patients and their caregivers to monitor and detect their own personal set of early symptoms that precede a relapse, and to initiate treatment. A trusting and stable relationship between individuals and the mental health service is essential

for this to succeed. Psychoeducation should be an ongoing process as Jolley et al's (1990) experience has shown that a single teaching session is insufficient. The case management approach which provides for the continuity of care would also be beneficial.

6. *Family therapy & expressed emotion*

The concept of 'expressed emotion' (EE) founded on the results of a study by Brown, Carstairs & Topping (1958) and later operationalised by Brown et al (1962), triggered off a long series of studies on the effect of family interactions on the course and outcome of schizophrenia. A meta-analysis of EE studies by Bebbington & Kuipers (1994) revealed that the overall relapse rate in high EE families was 50% compared to 21% in low EE families. This overwhelming evidence seems to have justified the flurry of family interventions, therapy and evaluation studies in the 1980s (eg Leff et al, 1982, 1985; Falloon et al, 1982, 1985; Hogarty et al, 1986; Tarrier et al, 1988, 1989; Zhang et al, 1995). Having identified high EE as robust predictors of relapse, family intervention programmes have aimed to help family members learn to communicate in more constructive ways.

Acknowledging that the family atmosphere had become negative and too focused on the patient's problems helps family members to develop a more positive attitude towards the patient. The focus would then be on good things happening in the family, better ways of interacting and more appropriate expression of feelings. Feedback about each other's behaviour and discussions

on potential changes are carried out within family sessions in the presence of the therapist. Results of such interventions have shown consistently significant reduction of relapse rates. The role of EE as a risk factor for relapse in schizophrenia has been replicated in many countries which has contributed further to the validity of the concept of "expressed emotion".

7. *Social Skills Training*

Interventions to enhance interpersonal competence and social skills of patients with schizophrenia can improve the course and outcome of the illness as social impairments have been shown to be a concomitant component of schizophrenia (Mueser & Bellack, 1998). Systematic programmes to modify or improve the social behaviour of patients have been introduced as part of a rehabilitation process to help them reintegrate into society (Halford & Hayes, 1992; Liberman, Spalding & Corrigan, 1995). This psychosocial therapeutic intervention is a highly structured and active form of therapy that uses learning techniques and activities to help patients acquire competencies in various key areas of community functioning like conversational skills, conflict management, time management and survival skills.

8. *Psychoeducation*

Patients may have their own explanatory models for the cause of their illness and some of these models may not believe in the need for medication. Psychoeducation on the biopsychosocial model of schizophrenia is necessary

and beneficial in educating patients on the effectiveness of medication which can ameliorate the distressing and debilitating symptoms of the schizophrenic illness and arrest chronicity. Results of various studies have shown that psychoeducation programmes can improve compliance with medication (Macpherson, Jerrom & Hughes, 1996; Hornung et al, 1996).

Patient Education Programme used in the present study

As an intervention to improve compliance with psychiatric treatment, a Patient Education Programme (PEP), a structured psychoeducation programme about schizophrenia, its treatment and management, is given to most patients admitted to Woodbridge Hospital. The author had no input into this programme as it was designed and delivered solely by nurse educators.

The group sessions of the PEP in the present study were covered over 6 hours and the sessions were spread over two-and-a-half days. Individual sessions were covered over 4 hours during which the information was imparted to one patient at a time over one or two days. The sessions were conducted in English, Mandarin and Malay according to main language of the group members and they were mainly didactic but time was given for questions and answers at the end of each session.

The PEP was administered to the patients by 3 trained nurse educators using a structured standardized package. This consisted of 5 modules dealing with (1) understanding mental illness and schizophrenia, its diagnosis, symptoms and treatment (2) medication and its possible side-effects, factors leading to non-compliance and how to overcome them (3) coping with emotions and anger

management (4) stress and its management and (5) family values, filial piety and relationships including the importance of communication.

Patients were told that the diagnosis of their illness was based on their behaviour and content of speech prior to their first admission to the hospital. It was also based on information obtained from relatives and on observation of their behaviour in the ward over the few days after admission. The importance of a diagnosis to determine the type of treatment was emphasized. Schizophrenia was described as a form of mental illness with variations of symptoms, course and outcome among different patients. Its prevalence in Singapore and world-wide was also made known to the patients. Positive and negative symptoms of schizophrenia were then listed with detailed description and explanations of each of the symptoms given. The second session covered the topic of medication. The four main classes of medication used in the treatment of mental illness, namely antipsychotics, antidepressants, anti-anxiety/hypnotics or tranquilizers and mood stabilizers were described and their common side-effects mentioned. The generic and trade names of each of the medication, the indication, route of administration and dosage range were then taught.

A lecture on coping with anger occupied the first hour of the second day. Anger as an emotion was discussed together the positive and negative functions of anger. The causes of anger, when it becomes a problem and techniques of anger management were then presented. The afternoon lecture of one and a half hours dealt with stress management in which general information about the nature of stress and its effects on the body is given. Types of stress and steps to

control stress including deep breathing, mental and muscle relaxation exercises were taught. The final hour of the third day covered family values. Patients were reminded about the love, care and concern they can derive from family members that makes an individual feel appreciated and secure. The importance of mutual respect and filial responsibility to honour and support one's parents and grandparents and to provide for them in their old age was emphasized. The need for commitment to family members to stand by one another through life's ups and downs which may sometimes involve making sacrifices was discussed. Effective communication to enable family members to understand each others' feelings, ideas and view was described as essential as they build trust and foster close and enduring relationships. The emphasis was that family bonds are strengthened through open and honest communication. At the end of the two-and-a-half day (6 hours) programme for groups and the 4 hour programme for individuals, patients were requested to evaluate the programme by completing a simple questionnaire.

Ethnicity as defined in the present study

The term "ethnicity" will now be discussed in relation to the present study. As mentioned earlier in Chapter 1, culture can often blur ethnic distinctions even though the ethnic groups may remain distinct while becoming different from the original migrant group. The ethnic groups in Singapore seem to illustrate this phenomenon very accurately. For example, the present Chinese in Singapore have remained distinctively Chinese in terms of physical appearance, a sense of

belonging and practice of traditional customs. Many of them, however, have been acculturated into a Singaporean culture quite distinct from the original Chinese culture in terms of language, dressing, social roles, taste for food (eg influence of the spicy Malay and Indian food) and loss of certain traditional Chinese values.

The concept of "ethnicity" has been a subject of much controversy and debate in some countries where "ethnic minorities" have been a political issue. In Singapore, however, this does not arise as the population comprises mainly migrants who have left their various countries of origin and have settled down and made the island state of Singapore their country of abode. Most of them have, however, retained their distinct individual ethnic characteristics. For the purpose of this study, ethnicity in Singapore is socially and politically determined and is defined to be characterised by a sense of belonging and group identity (Jenkins, 1986). The members of each group share a recent common ancestry, a knowledge of their ethnic group history and a self-perception that they do belong to the group (Heath, 1991). For example, a Singaporean Indian-Muslim man who perceives himself more Indian than Malay despite being Muslim, and whose parents are also Indian-Muslims, would be considered an Indian and not a Malay and therefore be excluded from this study. Under the population census, such a person would be given an ethnic classification of Indian Muslim. A Chinese in Singapore whose ancestors originally came from China, and who looks oriental, practices basic Chinese customs and holds a self-perception of being Chinese regardless of religious affiliations, would be considered Chinese.

Predicting the course and outcome of schizophrenia

The various ways in which course and outcome have been measured in previous studies have been discussed in detail in Chapter 1. The scales commonly used in some of these studies, their development and rationale for using them will now be discussed.

As course and outcome have been shown to be highly related to compliance with medication and psychiatric treatment, the factors purported to cause non-compliance will be addressed, together with other factors like cultural beliefs and practices.

Measurement of factors influencing non-compliance

Non-compliance has been defined as the non-adherence to a prescribed and appropriate treatment, not necessarily only psychopharmacological treatment (Bebbington, 1995). Various factors have been associated with non-compliance and standardized measures have been used to examine these factors. Some of the studies have measured insight, subjective response to medication, and relative's knowledge and attitude about schizophrenia (Agarwal et al, 1998). Others have examined side-effects to medication, voluntary versus compulsory admission to hospital and history of previous compliance (Buchanan, 1992). Results of these studies have been varied; while some showed a significant effect of these factors on compliance, others have concluded that sociodemographic factors and illness variables were unrelated to compliance.

Rating scales to measure factors causing non-compliance

Insight and the Birchwood Insight Scale

The concept of insight in schizophrenia has important implications on issues such as compliance with treatment, dangerousness, suicide, prognosis and management of the illness. Aubrey Lewis (1934) defined insight as "a correct attitude to morbid change in oneself" but warned that the words used required further definition. He further elaborated the definition to include "the patient's recognition that he or she is suffering from an illness and the realisation that the illness is mental". David (1990) has expanded the definition to incorporate "the ability to relabel the experience of certain mental events as pathological".

The measurement of insight has previously been solely through interview, a method which makes frequent repeated measurement difficult and requires inter-rater reliability to be established. A reliable and valid scale that is sensitive to change and acceptable for use in routine clinical practice is the self-report Insight Scale for psychosis developed by Birchwood et al (1994b) (Appendix 5.1.1).

Side-effects to medication and the LUNSERS

As side-effects of medication have often been cited as one of the main contributory factors of non-compliance, it is important and relevant to acknowledge and assess these side-effects in the clinical management of

psychotic illnesses. Accurate assessment and steps taken to reduce the side-effects should be able to enhance compliance.

The side-effect rating scale, the Liverpool University Side-Effect Rating Scale (LUNSERS) (Appendix 5.2.1) was developed by Day et al (1995) to assess patients' perception of side-effects to antipsychotic medication. This scale incorporated some of the items from the UKU side-effect rating scale for antipsychotics (Lingjaerde et al, 1987) which is comprehensive but time-consuming to administer and requires a trained rater (typically a psychiatrist).

The LUNSERS is a self-rating scale consisting of 41 side-effect items to which patients have to respond on a 5-point scale. It has been shown to be an efficient, reliable, comprehensive and valid scale that is easy to administer and can be used routinely in clinical practice and in research studies. Other rating scales for the assessment of antipsychotic side-effects such as those by Simpson & Angus (1970) and Barnes (1989) measure specific side-effects.

Attitude towards medication and the Drug Attitude Inventory (DAI)

Another factor cited as a cause of non-compliance is the patient's pre-existing attitudes towards antipsychotic treatment. Patients' subjective perception of the effects of medication plays a large role in influencing their attitude towards the medication. There has been scant attention to this aspect of the patients' subjective complaints accompanying antipsychotic treatment (Nevins, 1977). Based on this observation, Hogan et al (1983) constructed a scale using schizophrenic patients' self-reports of their experience of

antipsychotic treatment. The scale, the Drug Attitude Inventory-30 (DAI-30) consists of 30 items reflecting how the patient feels on medication, rather than what he knows or believes about medication. From this 30-item scale and using stepwise discriminant analyses, a shorterned version of the scale, the DAI-10 (Appendix 5.3.1) was derived by Hogan & Awad (1992) and shown to be a reliable measurement of patients' self-reports of the medicated experience and a useful predictor of drug compliance.

Hogan et al (1983) suggested that the schizophrenic patient who has a clear understanding of the purpose of a drug, its expected effects, the nature of the regimen, and the right and wrong time for discontinuation is more likely to be compliant with antipsychotic treatment than patients who lack comprehension or who mistrust their psychiatrist and thus refuse to take their medication.

There are also patients with persistent objections or reluctance in taking their medication, based on non-specific complaints of not feeling like themselves, or of being affected in their functioning, who represent a large majority of the non-compliant group. These vague subjective complaints often have no obvious bearings on the pharmacological action of the drug but have been identified as descriptions of behaviour toxicity (DiMascio, 1970), dysphoric subjective response (Singh, 1976; Van Putten & May, 1978) or psychophysiological sensitivity (Lipowski, 1977; Hogarty et al, 1979). Other subjective complaints may, however, be due to extrapyramidal, autonomic side-effects, syndromes of akinesia (Rifkin et al, 1975) or akathisia which have pharmacologically related affective components (Falloon et al, 1978).

Ultimately, the patients' subjective interpretation of their altered physiological medicated state is what determines acceptance or rejection of the medication. When studying why patients are not compliant with their medication it is thus important to examine their attitude towards having to take the drugs prescribed by their psychiatrists.

Other factors in non-compliance

Sellwood and Tarrier (1994) examined the demographic factors associated with non-compliance in schizophrenia and found that gender and ethnicity were significant predictors of extreme non-compliance. This has been discussed in detail earlier in this chapter and in Chapter 4.

Bebbington (1995) found that non-compliance with antipsychotic medication may occur in up to 50% of patients with schizophrenia and may be more common in young people, particularly if male or from certain ethnic minority groups. Earlier studies (Babiker, 1986; Ballinger et al., 1974; Talbott et al., 1986; Young et al., 1986) have estimated that between 10% and 76% of patients are non-compliant. This wide range in the estimates is the result of differences in definitions of compliance and populations studied. Babiker (1986) further commented that it is likely that non-compliance rates are underestimated because taking part in a follow-up study necessitates some degree of compliance.

Effects of non-compliance

Non-compliance has been shown to have marked effects on long-term outcome. A study by Vaughn and Leff (1976), for example, found that over a 9-month period, 50% of patients relapsed when not taking their medication regularly compared with 14% of those who complied with medication. Besides the cost of relapse borne by the patient, family members who often bear the brunt of supervising, caring for and coping for the patient are also distressed by the patient's illness (Fadden et al, 1987). Compliance with maintenance medication following recovery from an acute episode of schizophrenia has been shown to reduce risk of relapse in the ensuing year by 60-70% (Johnson, 1993).

Besides investigating the effects of the well-identified factors associated with non-compliance in schizophrenia, this study also examines in detail the patients' and relatives' beliefs about the causes of the illness and their beliefs about the effectiveness of different treatment approaches which are likely to determine compliance as well.

Measurement of outcome

Since the early 1960s, there have been a large number of studies on outcome in schizophrenia. Zubin et al (1961) listed over 800 studies having been reported by 1961. The different areas of outcome measurement in schizophrenia include symptomatology of the patients, their social and occupational functioning, the number of rehospitalizations and the length of community tenure (Strauss & Carpenter, 1972). Two scales commonly used to

measure symptomatology and overall functioning are the Brief Psychiatric Rating Scale and the Global Assessment of Functioning Scale respectively.

Symptomatology and the Brief Psychiatric Rating Scale

Psychopathology has commonly been assessed using the Brief Psychiatric Rating Scale (BPRS), a semi-structured interview for the major psychiatric symptoms (Appendix 5.4). The BPRS was developed by Overall & Gorman (1962) and is, as its name suggests, a brief yet fairly comprehensive tool consisting of 18 items. These items measure a range of symptoms including anxiety, grandiosity, hallucinatory behaviour, conceptual disorganization and other common psychiatric symptoms. Its brevity allows for repeated measures to be taken at short regular intervals to chart the progress of the illness and the effects of interventions.

Social & occupational functioning & the Global Assessment of Functioning Scale

The Global Assessment of Functioning (GAF) Scale is a standard rating scale for overall psychological functioning. Luborsky (1962) was the first to operationalize the rating of overall psychological, social and occupational functioning on a scale of 0-100 in the Health-Sickness Rating Scale. Endicott et al (1976) then developed a revision of the Health-Sickness Rating Scale and renamed it the Global Assessment Scale (GAS). The GAS was then modified, renamed the GAF and included in the DSM-III-R.

The GAF scale (Appendix 5.5) assesses the psychological, social and occupational functioning on a hypothetical continuum of mental health-illness from "superior functioning in a wide range of activities, is sought out by others because of his or her many positive qualities and with no symptoms" (range 91-100) to the other extreme in which the person is in "persistent danger of severely hurting the self or others (eg recurrent violence) OR persistent inability to maintain minimal personal hygiene" OR "serious suicidal act with clear expectation of death" (range 1-10). Impairment in functioning due to physical or environmental limitations are not included.

Ratings of patients' compliance and the Compliance Rating Scale (CRS)

An objective and clinical evaluation of the patient's initial and subsequent compliance with antipsychotic medication is useful to monitor the patients' behaviour in taking their medication. Kemp et al (1996) developed the Compliance Rating Scale (CRS) for their study on Compliance Therapy. This is a 7-point rating scale ranging from 1=complete refusal, through 4 (occasional reluctance ie questioning need occasionally) to 7=active participation ie full acceptance and taking some responsibility for own treatment. The CRS is a brief yet comprehensive scale that is user-friendly and allows for repeated ratings of compliance (Appendix 5.6). This rating is based on self-report of the patients as well as information obtained from their clinicians, casenotes and caregivers.

Outcome of patients & ratings of compliance 6 months after initial assessment

Information about employment and accommodation status, number of rehospitalizations and length of community tenure was obtained when patients were interviewed 6 months later. Compliance was rated again and all the information was recorded in the Patients' Outcome Inventory (Appendix 5.7)

PROPOSED MODEL, PATHWAYS & PREDICTIONS

The main aim of this thesis as discussed earlier is to explore if, and to what extent, the ethnicity and causal beliefs of a cohort of patients affect the course and outcome of their schizophrenic illness. The main predictions will therefore be concerned with the patients themselves. Predictions will also be made about the effect of the psychoeducation intervention programme, demographic factors and other factors related to the patients including insight, attitude towards medication and side effects of medication. These predictions will be clustered under sub-headings and discussed below. Effects of caregivers' beliefs on the patients' compliance and outcome will also be considered. A model and possible pathways are proposed for this study and predictions will be made according to the pathways.

Proposed model and possible pathways

The model below is proposed for this study which examines the influence of ethnicity and beliefs on the course and outcome of schizophrenia in Singapore.

Ethnicity => beliefs => compliance + (intervention) + influence of caregivers' beliefs => course and outcome

It is postulated that there are three possible pathways:

<u>Pathway 1</u>:

The effect of ethnicity and beliefs of the patients on outcome is mediated by compliance with medication.

Pathway 2:

Ethnicity and beliefs of the patients directly affect their outcome.

Pathway 3:

Caregivers' beliefs have a direct effect on the course and outcome of the patients.

Predictions for this study will be made reflecting these three pathways within the basic model. The first set of predictions concerns the psychoeducation intervention programme and this will be considered separately from the pathways.

PREDICTIONS

1. *Psychoeducation Intervention Programme (PEP) & outcome:*

5.1.1 Patients who have undergone the programme will have better outcome than the control group in terms of fewer rehospitalizations and a longer period of community tenure.

5.1.2 Patients who received individual intervention will have better a outcome than those who had group or no intervention as it is hypothesized that a patient given individual attention will benefit more that those in a group situation or those who have not received any psychoeducation.

5.1.3 Patients who received PEP will have better insight at the 6-month follow-up interview ie higher overall scores on the Birchwood Insight Scale and the Relabel, Awareness of illness and Need for treatment subscales.

Reflecting Pathway 1 via compliance:

2. *Patients' compliance ratings in relation to insight & outcome*

5.2.1 Compliant patients at baseline will have fewer symptoms as measured on the BPRS, better scores on the GAF at baseline and at outcome and fewer rehospitalizations and longer community tenure at outcome.

5.2.2 Patients who are compliant at baseline will have better insight scores, a more positive attitude to medication and have fewer side effects as measured on the Birchwood Insight Scale, DAI-10 and LUNSERS respectively.

Reflecting Pathway 2 (direct influence of ethnicity and beliefs on outcome)

3. *Demographic factors and BPRS & GAF scores at baseline & outcome*

5.3.1 Male patients are predicted to have higher BPRS and lower GAF scores at baseline and outcome, greater number of rehospitalizations and shorter duration of community tenure than female patients.

5.3.2 Malay patients are predicted to have higher BPRS and lower GAF scores at baseline and outcome, greater number of rehospitalizations and shorter duration of community tenure than Chinese patients.

4. *Causal & treatment beliefs & outcome*

5.4.1 Patients who endorse more biological causes and professional mental health care treatment methods will have lower BPRS, higher GAF scores

both at baseline & outcome, fewer rehospitalizations and longer community tenure than those who endorse other causes.

5.4.2 Patients who endorse more supernatural, intrapsychic or psychosocial causes will have higher BPRS and lower GAF scores both at baseline & outcome, more rehospitalizations and shorter duration of community tenure than patients who endorse more biological causes.

6. *Insight, attitude & causal beliefs*

5.5.1 Patients with higher scores on the Birchwood Insight Scale will endorse more biological causal beliefs and professional mental health treatment approaches. These patients will be more compliant with medication and also have better outcome measures in terms of lower BPRS and higher GAF scores at the 6-month follow-up, fewer rehospitalizations and longer community tenure.

5.5.2 Patients with higher scores on the DAI-10 will have a better outcome ie lower BPRS scores and higher GAF scores, less hospitalization and longer community tenure.

5.5.3 Patients with lower scores on the LUNSERS will have a better outcome ie lower BPRS scores and higher GAF scores, less hospitalization and longer community tenure.

Reflecting Pathway 3 via caregivers' beliefs:

6. <u>Caregivers, their beliefs & patients' outcome</u>

5.6.1 It is predicted that caregivers' causal and treatment beliefs are related to the patients' outcome in terms of symptomatology and overall psychological functioning. Hence patients with caregivers who believe more in biological causes and who endorse more professional treatment will have better outcomes ie lower BPRS & higher GAF scores, and less rehospitalizations and longer duration of community tenure.

METHOD

Participants

The responses to the Patients' Belief Questionnaire and the Caregivers' Belief Questionnaire of the same cohort of 197 patients and the 67 caregivers respectively as described in Chapter 4 were examined. The patients were administered 6 other rating scales and inventories.

Patients

One hundred and ninety-seven patients were recruited for the main study of this thesis. The inclusion and exclusion criteria for these patients have been described in the patient section of Chapter 4. Six patients approached refused to participate and were excluded.

The demographics of the patients are shown in Table 5.1. Of the 103 Chinese patients, 53 were male and 50 were female. Within the Malay group, 50 were male and 44 were female. Their mean (SD) age was 39.2 (9.2) years and the ages ranged from 19 to 62 years. Both parents of all the patients were of the same ethnic group as the patient. All Malay patients were Muslims and one Chinese female patient was a Muslim convert. Chinese patients were Buddhist/Taoist, Christians and atheists, freethinkers or claimed they had no religion. The majority of patients had secondary level education ie between 7-10 years of formal education with minority of them having had tertiary education or no formal education at all.

The majority of patients were single, the rest being married, divorced or separated and a small percentage was widowed. At the first interview, more than half the patients were unemployed, about one third was employed, mainly in menial work (eg cleaners), with a few functioning as homemakers or attending day centres and a very small number were students. About two-thirds of the cohort came from the lower income group with all family members earning up to a maximum of $1999 per month. A small percentage of the patients' families was in the high income group earning more than $6000 per month. More than three-quarters of the cohort of patients were living with family members at the time of first interview. The rest were staying in institutions, on their own or had no accommodation. Of this cohort of patients, more than a third had a history of mental illness in the family.

The mean (SD) age of onset for this cohort of 197 patients was 24.9 (7.1) years with a range between 11 and 49 years. The mean (SD) age of first contact with psychiatric services was 26.0 (7.3) years, range 13 to 49 years. The mean (SD) duration of illness was 14.3 (8.7) years with a minimum of 1 year and a maximum of 36 years. The mean (SD) number of admissions was 8.8 (8.1), the minimum being 2 and maximum being 49.

Table 5.1
Demographic profile of the 197patients recruited for the main study

	Number	Percentage
Sex: Male	103	52.3
Female	94	47.7
Ethnic group: Chinese	103	52.3
Malay	94	47.7
Religion: Buddhist/Taoist	60	30.5
Muslim	95	48.2
Christian	30	15.2
Others (atheist, freethinker, no religion)	12	6.1
Education: No formal education	10	5.1
Primary	57	28.9
Secondary	90	45.7
Vocational	19	9.6
Pre-university	10	5.1
Tertiary	11	5.6
Marital status: Single	128	65
Married	34	17.3
Divorced/separated	29	14.7
Widowed	6	3
Work status: Employed	58	29.4
Unemployed	112	56.9
Attending Day Centre	8	4.1
Homemaker	16	8.1
Student	3	1.5
Accommodation: Alone	19	9.6
With family	150	76.1
With friends	6	3
In group homes	1	0.5
In institution	17	8.8
No accommodation	4	2
Socioeconomic status: $499 & below	30	15.2
$500 - $999	43	21.8
$1000 - $1999	53	26.9
$2000 - $2999	35	17.8
$3000 - $3999	19	9.6
$4000 - $4999	5	2.5
$5000 - $5999	5	2.5
$6000 & above	7	3.6
Family history of mental illness: Yes	75	38.1
No	122	61.9
Allocation of patients into PEP:		
Group	62	31.5
Individual	60	30.5
Control	75	38

Caregivers

The patients' main caregivers were interviewed when they visited patients in the wards or when they agreed to come to the wards at the request of the Investigator.

Demographic data of the caregivers are shown in Table 4.3. They completed the Caregivers' Beliefs Questionnaire after giving their written consent.

Scales and Inventories used in the present study

In the present study, aspects of non-compliance and outcome of the illness were measured using a battery of scales and inventories. Patients were administered the following scales based on the rationale stated below:

1. Demographic data inventory and Compliance Rating Scale (CRS)

Demographic data included age, sex, ethnic group, date of birth, educational level, marital and employment status, living arrangements and background history of their illness. (Appendix 5.6)

Compliance with antipsychotic medication was rated using the Compliance Rating Scale (CRS) in Appendix 5.6 which was adapted from Kemp et al (1998). This rating was based on information from the patient's casenotes, and from interview with the patient, his or her caregiver and the patient's clinician. If the compliance rating is poor (ie equal to or less than 5) the reason for poor compliance is indicated. The frequency that medication is missed and

compliance with follow-up appointments (ie regular, irregular or defaulted) are also noted. Inter-rater reliability on the rating of compliance was established between the investigator and a psychiatrist for 20 patients who were not included in the study. Inter-rater correlation was significant at the 0.001 level (2-tailed) with rho=0.97.

Compliance with medication and appointments was rated again at the 6-month follow-up interview and recorded in the Outcome Compliance Inventory (Appendix 5.7).

2. Birchwood Insight Scale

The present study requires repeated measurements of insight (at baseline and at 6-month follow-up). Whenever possible ie with literate patients, the Birchwood Insight Scale (Appendix 5.1.1) which was translated and back-translated into Mandarin (Appendix 5.1.2) and Malay (Appendix 5.1.3) was completed by the patients themselves. The 8-item scale was found to be comprehensible and easily completed by the literate patients in the local population. For patients who were unable to read, the scale was read to them in the relevant language and their responses recorded. They had to indicate if they agreed, disagreed or were unsure of each of the statements as applied to themselves. The scale was administered at the initial interview and at the 6-month follow-up.

This scale provided an overall (total) score for insight (the higher the score the greater the insight) and also 3 subscores for the 3 dimensions of insight as

proposed by David (1990) - awareness of illness, awareness of need for treatment and ability to appropriately relabel the psychotic symptoms.

3. LUNSERS (Liverpool University Side Effect Rating Scale)

For the purpose of this study, the 10 'red herring' items which the authors used in constructing the scale to discriminate between real side-effects and symptoms not known to be antipsychotic side effects seemed not culturally relevant and not really essential and were therefore excluded. There were 41 side-effect items and patients were instructed to indicate how much they have experienced the following symptoms over the last month or while they were on the medication given by the psychiatrist. This latter clause had to be included in the present study as many patients had defaulted follow-up treatment and medication for several months, even years prior to their current admission to hospital.

Items on the LUNSERS (Appendix 5.2.1) were rated on a 0-4 scale ('Not at all', 'Very little', 'A little', Quite a lot', 'Very much' respectively). This is a self-rating questionnaire which was translated and back translated into Mandarin (Appendix 5.2.2) and Malay (Appendix 5.2.3). The questionnaires in English and the other two languages were either presented to the patient if they could read, or read to the patients if they were illiterate and they responded accordingly.

4. DAI-10 (Drug Attitude Inventory-10)

The DAI-10 (Appendix 5.3.1) was considered a suitable and efficient Inventory for the present study. This questionnaire was translated and back-

translated into Mandarin (Appendix 5.3.2) and Malay (Appendix 5.3.3). The questionnaires in English and the other two languages were either presented to the patient if they could read, or read to the patients if they were illiterate and they responded accordingly. Patients responded by indicating whether each statement was true or false as applied to themselves.

5. Beliefs Questionnaire

The beliefs of the patients and relatives about the causes of schizophrenia are of considerable importance in determining compliance. The questionnaire examining such beliefs must, however, be relevant to the culture of the population under study. Based on a study of beliefs on a sample of the Singaporean lay population, a Beliefs Questionnaire was developed specifically for this study. The development of this Questionnaire is described in Chapter 4 and is found in Appendix 4.1.1. The Questionnaire was translated and back-translated into Mandarin (Appendix 4.1.2) and Malay (Appendix 4.1.3)

It is a self-rating questionnaire and consists of 3 parts: (Part I) 30 beliefs about the causes of their illness or admission to Woodbridge Hospital to be rated on a 4-point scale, (Part II) 9 beliefs about the forms of treatment on a 4-point rating on how much each treatment method can help them and (Part III) consisting of 6 general questions about their self-perception and attitudes towards traditional healers, to which they had to respond yes, no or unsure.

A parallel questionnaire, the Caregivers' Beliefs Questionnaire (Appendix 4.2.1) was developed for caregivers, based on the Patients' Beliefs

Questionnaire, with translations and back-translations in Mandarin (Appendix 4.2.2) and Malay (Appendix 4.2.3).

6. Brief Psychiatric Rating Scale (BPRS)

Baseline assessment of the patients' overall psychopathology and mental state was obtained using the BPRS (Appendix 5.4), and again at the 6-month follow-up. Good inter-rater reliability was established between the investigator and a psychiatrist on 20 patients who were not included in the main study. The non-parametric correlation for 17 out of the 18 BPRS items was significant at the 0.001 level (2-tailed) and one at $p<0.05$ (2-tailed). Spearman's rho for the 17 items ranged between 1.00 and 0.70 while the item for which $p<0.05$ was 0.55.

At the first contact, assessment on the BPRS of any patient was delayed until the patient was deemed by the clinician to be reasonably mentally stable. Mental state was assessed again using the BPRS at 6 months after initial assessment.

7. Global Assessment of Functioning Scale

Patients were rated at the initial interview and at the 6-month follow-up on their social competence, employment status and overall psychological functioning using the Global Assessment of Functioning (GAF) Scale (Appendix 5.5). Inter-rater reliability was obtained between the investigator and a psychiatrist based on ratings of 20 patients not included in the main study. This was highly significant at the 0.001 level (2-tailed) with rho=0.99.

Comparability of the scales across ethnic groups

Some of these scales like the BPRS and the GAF have been validated for use in Singapore and are currently being often used in the local Singaporean population. The Birchwood Insight Scale, the LUNSERS and the DAI-10, however, have not been frequently used in Singapore, hence the comparability of these 3 scales was tested for the Singaporean population across the two ethnic groups.

Birchwood Insight Scale

The baseline responses of the patients to the 8-item Birchwood Insight Scale had a high total alpha coefficient of 0.85. The reliability of the scale was equally high for both the Chinese (alpha coefficient=0.88) and the Malays (alpha coefficient=0.82). Similar results were found for the patients' responses at the 6-month follow-up interview with total alpha coefficient=0.85, for the Chinese, an alpha coefficient of 0.83 and 0.87 for the Malays. The Birchwood Insight Scale was therefore considered to be suitable for use with the Singapore population.

LUNSERS

The reliability coefficient for the total of 41 items of the LUNSERS was found to be satisfactory (Cronbach's alpha coefficient=0.73) using the 197 patients' responses to the scale. The two ethnic groups responded consistently to the scale with an alpha coefficient of 0.70 for the Chinese and 0.75 for the Malays. Hence the LUNSERS has been shown to be reasonably relevant and

meaningful to the local Singapore patient population and can be used to assess their side-effects to medication.

Drug Attitude Inventory 10 (DAI-10)

Reliability analysis of the 10 items of the DAI-10 resulted in a high total Cronbach's alpha coefficient of 0.88. The coefficient for the Chinese patients was 0.86 while for the Malay patients it was a high 0.90. Hence reliability analysis of the DAI-10 has shown it to be a suitable scale to assess the attitude of the Singaporean patient population towards their medication.

Medication & the prescribing pattern in Woodbridge Hospital, Singapore

An overall picture of the prescribing pattern and the standard medication generally prescribed for the patients in Woodbridge Hospital, Singapore, from which the cohort of patients for this study was recruited will provide a better understanding of these patients' perception of and attitudes towards antipsychotic medication.

Surveys of prescribing patterns in the use of antipsychotics have generally criticized the excessive dosages prescribed and the practice of polypharmacy (Prien et al, 1978). Polypharmacy which is defined as the simultaneous use of two or more antipsychotics, seems to be more common among Asian psychiatric patients (Nunley, 1996; Binder et al, 1987). This practice seems even less desirable in the light of research data which suggest that Asian patients may require lower dosages of antipsychotics (Lin & Finder, 1983; Rosenblatt & Tang,

1987) and are probably more vulnerable to developing extrapyramidal side-effects (EPSE) (Lin & Finder, 1983; Binder & Levy, 1981; Yamamoto et al, 1979). These findings considered, it would be expected that in an Asian psychiatric population, the logical practice would be to use smaller doses of antipsychotics.

Chong et al (2000) surveyed the use of antipsychotic and anticholinergic medications among Chinese patients with chronic schizophrenia in Woodbridge Hospital and compared their findings with those of surveys of Chinese patients in other countries. They found that 59% of Singaporean patients were prescribed two or more antipsychotics (median daily dose of 400mg CPZ-equivalent, range 50 to 2875mg). Sixty-six percent of the patients were receiving depot antipsychotics, with more than half of these patients also receiving additional oral antipsychotics. Furthermore, they found that patients who were prescribed multiple antipsychotics received significantly higher total doses than those receiving just one antipsychotic. Only 1% of the patients was prescribed an atypical (2nd generation) antipsychotic. Sixty-five percent of patients were prescribed an anticholinergic agent. Their conclusion was that, though comparable to the prescribing patterns for Chinese patients in Hong Kong and China, nevertheless in Singapore, the pervasive use of multiple typical (1st generation) antipsychotics, the marked under-utilization of atypical antipsychotics, and the very sparing usage of anticholinergic medication in patients who might benefit from it were issues of substantial concern that warranted action in the practice of psychiatry in the hospital and mental health policy in Singapore.

As Woodbridge Hospital is the only state mental hospital in Singapore with a total bed capacity of 2800, the majority of patients with schizophrenia are highly likely to have received their entire treatment at this hospital and from its affiliated community psychiatric outpatient clinics. The Chinese being the largest ethnic group, these results are, therefore, fairly representative of the prescribing pattern of clinicians to the rest of the patient population.

The health system in Singapore is not a national health service but patients from lower income groups can generally obtain a fairly substantial subsidy for their health-care while private patients pay quite considerable sums for their medical bills. Despite a much better side effect profile, the atypical (2nd generation) antipsychotics are not on the list of standard drugs prescribed by psychiatrists in Woodbridge Hospital because of the high cost of these newer medications. Hence the commonly prescribed oral antipsychotics would be the typical (1st generation) antipsychotics, most of which have been shown to cause extrapyramidal and other side-effects which may have an adverse effect on the outcome resulting in non-compliance with medication, increased psychopathology and readmissions to hospital.

Measurement of outcome in this study

Outcome here is based on the scores on the second BPRS and GAF ratings, the number of rehospitalisations and length of community tenure 6 months following the patients' discharge from the hospital after the first interview.

PROCEDURE

Patients were interviewed in the wards after at least 3 days of their admission or when the attending psychiatrist deemed that the patients were no longer acutely psychotic. This allowed time for the patient's mental state to stabilize and for the treatment to take effect. Patients' informed consent was obtained after the study procedures were explained to them. They were administered the battery of scales and questionnaires by the investigator as described above in the Methods section. This battery of scales was selected to assess the patients' compliance with medication prior to the current admission, their beliefs about the causes of their illness or necessity to be admitted to Woodbridge Hospital and their current level of functioning. The effects of the various factors possibly influencing non-compliance with medication, for example, attitude towards medication, side-effects and insight were also measured using the relevant scales. Information on the patients' compliance was obtained from the patients, their caregivers, the patients' psychiatrists and the casenotes.

The patients were then referred to the nurse educators who assigned them according to a random list generated by an external statistician to one of three groups – individual, group or control. The patients were assigned into the three groups because the nurse educators wanted to examine the effects on outcome of the PEP delivered in one-to-one individual sessions, in small group settings and when patients were not given any psychoeducation. Psychoeducation sessions were conducted in the wards by the three nurse

educators using a standardized schedule. The effectiveness of this programme was examined and compared among the three groups. Results can provide some insight into the approach to delivery and content of this programme.

Before discharge from the Hospital, the patients were informed that they would be contacted in six months' time for a second interview.

Patients were followed-up 6 months later when they turned up for their routine appointments (as indicated on the computer appointments system) with their psychiatrists in the various outpatient clinics all over Singapore. This proved to be very unsatisfactory as patients often did not turn up on the specified days or at all. They were instead contacted by telephone and given an appointment to come to the outpatient clinic of Woodbridge Hospital specifically to be interviewed for this study. They were each given S$10 to defray transport cost.

At this follow-up interview, 3 out the battery of 7 scales (the BPRS, GAF and the Birchwood Insight Scale) were administered again. Information on length of community tenure, number of rehospitalisations during the 6 months, their employment and accommodation status was obtained through the casenotes, computer records and from the caregivers (when they accompanied the patient) and the patients themselves. This information was recorded in the Patients' Outcome Inventory. Patients were also rated on their compliance with medication and follow-up appointments based on information obtained directly from the patient, the caregiver when present, casenotes and from the patient's psychiatrist. They were finally asked once again if they thought they have a

mental illness and what they believed was the main cause of illness and/or the problems that resulted in their admission to Woodbridge Hospital. Their answers were recorded verbatim and allocated into one of the 6 categories. All these outcome information was recorded in the Patients' Outcome Inventory.

All data were keyed into ACCESS and converted to Excel and then to SPSS for analyses.

RESULTS

Patients

At the 6-month follow-up interview, 8 patients (4.1%) were 'lost' to the study. One Chinese female patient had committed suicide by jumping from a high-rise residential building; there was no history of mental illness in this patient's family. Another Chinese female had defaulted treatment completely after her main caregiver, her husband, committed suicide himself as a result of depression caused by the patient's illness. This patient's mother is known to be on long-term outpatient psychiatric treatment.

A Chinese male patient with no family history of mental illness had defaulted treatment completely while another Chinese male patient had been imprisoned for causing grievous bodily harm; his maternal grandfather, now deceased, had been an inmate of the mental institution. Two Malay male patients had defaulted treatment and were no longer contactable for follow-up; one had no family history of mental illness but the younger brother of the other with a history of depression had committed suicide at the age of 26. Two other

Malay male patients were 'lost' - one had been jailed for the offence of selling pirated VCDs; two of his maternal uncles have a history of mental illness. The other had been arrested for being in possession of illegal drugs and had been sentenced to serve a term in the drug rehabilitation center; his elder brother, now deceased, was reported to have suffered from mental illness.

Table 5.2 shows the demographic data of the remaining 189 patients at the 6-month follow-up interview. The percentage of their responses to the question 'do you think you have a mental illness?' and the categorization of their responses are also indicated in the table. The majority of patients (65.1%) still did not believe they have a mental illness and most of them attributed the cause of their illness either to psychosocial or supernatural factors. No direct mention was made of socialization and financial reasons. It must be emphasized, however, that this is just an arbitrary inquiry and categorization of their beliefs..

A total of 45.1% of the 189 patients is either currently employed or had been employed for a short while after their discharge after their index admission to the hospital; 17.9% were either homemakers or attending day centers and 37% had not been employed at all. A large percentage (79.9%) were still living with their families or friends.

Table 5.2
Demographic profile of the remaining 189 patients at 6-month follow-up

	Number	Percentage
Sex: Male	97	51.3
Female	92	48.7
Ethnic group: Chinese	99	52.4
Malay	90	47.6
Work status: Currently employed	49	25.9
Was employed for a short while	36	19.2
Not employed since discharge	70	37
Attending Day Centre	12	6.3
Homemaker	22	11.6
Accommodation: Alone	14	7.4
With family	147	77.8
With friends	4	2.1
In group homes	0	0
In institution	21	11.1
No accommodation	3	1.6
Response to 'do you think you have a mental illness?':		
Yes	64	33.9
No	123	65.1
Unsure	2	1.1
Patients' response to 'what do you feel is the cause of your problems & the need to take medication?':		
Biological	11	5.8
Psychosocial	73	38.6
Intrapsychic	42	22.2
Supernatural	59	31.3
State of Society	4	2.1

Psychopathology of the patients

All patients did not present with the same degree of severity and duration of illness when they were first recruited for the study – this is inevitable as this is a naturalistic study. The mean BPRS and GAF scores of the cohort of patients at baseline are shown in Table 5.3 below. These scores provide a baseline picture of the severity of illness and social functioning level respectively of the patients.

Patients were rated again on the BPRS and GAF at the 6-month follow-up interview. The means and standard deviations of these outcome scores are also shown in Table 5.3. The number of rehospitalizations and length of community tenure are indicated as well.

Although there was a significant difference ($p<0.05$) in the baseline BPRS scores between the male and female patients (refer to Table 5.3 and the Demographic factors and BPRS results section of this chapter), this difference was no longer significant on the outcome BPRS scores as shown by the Mann Whitney U-test. Using a general linear model and conducting a full factorial analysis with gender, ethnicity and the 3 PEP intervention groups as fixed factors, the baseline BPRS scores as a covariate and outcome BPRS score as the outcome variable, the results showed that the baseline BPRS did not have any significant effect on the outcome BPRS ($F=0.29$, $df=2$, 176, $p=0.749$). In other words, the different levels of severity of illness did not have any significant impact on the outcome of the cohort of patients.

Table 5.3
Demographic factors, BPRS and GAF scores at baseline & at outcome

Groups	Baseline (N=197)				Outcome (N=189)							
	BPRS1		GAF1		BPRS2		GAF2		Rehospitalization		Community Tenure	
	Mean	sd	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd
Male	26.25	5.11	50.48	13.20	27.37	7.51	49.11	14.76	0.55	1.04	141.88	53.36
Female	28.23	6.21	49.30	13.71	26.90	6.49	51.89	16.90	0.38	0.63	134.81	56.23
Chinese	27.35	5.49	51.41	12.66	27.09	7.08	52.77	16.07	0.51	1.00	152.93	36.90
Malays	27.03	6.01	48.28	14.11	27.20	6.98	47.93	15.80	0.42	0.69	122.50	65.88

Effect of Psychoeducation Programme (PEP) on outcome: (Predictions 5.1)

The 197 patients were randomly allocated in 3 groups in which one group (62 patients; 31.5%) was given psychoeducation in small groups, another group (60 patients; 30.5%) was given psychoeducation individually and a third group (70 patients; 38%) was not given any psychoeducation at all and this group served as the control group.

The results shown in Tables 5.4 and 5.5 below showed that, contrary to Prediction 5.1.1, Kruskal Wallis test on the difference between the BPRS scores at baseline and at outcome showed no significant effect of the PEP on symptomatology whether patients were given individual, group or no psychoeducation.

At baseline before PEP, there was no significant difference in the BPRS, GAF and Birchwood Insight scores between the 3 groups and neither was any significant difference found in these scores at outcome after PEP. Hence predictions 5.1.1 and 5.1.2 have not been supported. The 3 groups also did not differ significantly in their reaction of side-effects to medication (LUNSERS scores) or in their attitude towards taking their medication (DAI-10 scores) before they received the psychoeducation (refer Table 5.4).

No significant difference was found among the 3 groups in the number of rehospitalizations and length of community tenure at the 6-month follow-up interview, thus not supporting Prediction 5.1.3 (refer Table 5.5). It appears therefore that the psychoeducation intervention programme did not have any

impact on the outcome of the patients at 6 months after the first interview and their discharge from the hospital at the index admission.

In Prediction 5.1.4, the chi-square test showed no significant difference (χ^2=1.38, df=1, p=0.24) in their response to the question 'do you think you have a mental illness' asked at the follow-up interview six months after the PEP intervention whether the patients were given or not given psychoeducation.

As shown in Table 5.5, in exploring the relation between PEP and insight (Prediction 5.1.5), no significant difference was found using the Mann-Whitney U-test on the overall insight scores and the subscale scores of relabeling, awareness of illness and need for treatment on the Birchwood Insight Scale between patients who received PEP and controls at baseline and at 6-month follow-up. Neither was any significant difference found using the Kruskal Wallis test in insight among the individual PEP, group PEP or controls (refer Table 5.5).

Table 5.4
Baseline BPRS & GAF, Birchwood Insight, LUNSERS & DAI-10 scores before PEP
(N=197)

Variable	PEP Groups						p
	Group		Individual		Control		
	Mean	SD	Mean	SD	Mean	SD	
BPRS1	26.65	5.73	27.75	5.67	27.09	5.78	NS
GAF1	49.95	13.14	49.84	13.37	49.28	12.83	NS
Birchwood Insight Scale 1							
Overall score 1	4.93	3.53	4.83	4.26	4.91	4.15	NS
Relabel 1	1.03	1.47	1.47	1.62	1.36	1.52	NS
Awareness of treatment 1	1.47	1.55	1.21	1.69	1.42	1.66	NS
Need for treatment 1	2.43	1.50	2.15	1.55	2.13	1.52	NS
LUNSERS	17.93	11.37	19.17	11.54	18.57	11.47	NS
DAI-10	5.88	3.36	4.95	3.33	4.96	3.43	NS

Table 5.5
Effects of PEP on BPRS & GAF scores, rehospitalizations & community tenure &
Birchwood at Outcome (N=189)

Variable	PEP Groups						p
	Group		Individual		Control		
	Mean	SD	Mean	SD	Mean	SD	
BPRS 2	26.46	5.50	27.89	7.85	27.11	7.46	NS
GAF 2	51.72	14.57	49.02	16.71	50.57	16.12	NS
Rehospitalizations	0.58	0.89	0.46	1.05	0.38	0.66	NS
Community tenure	129.13	59.76	150.77	40.83	136.43	58.76	NS
Birchwood Insight Scale 2							
Overall score 2	5.42	3.64	5.40	4.02	5.42	3.96	NS
Relabel 2	1.22	1.47	1.40	1.47	1.53	1.51	NS
Awareness of treatment 2	1.43	1.67	1.51	1.79	1.53	1.72	NS
Need for treatment 2	2.78	1.32	2.49	1.52	2.37	1.45	NS

Patient's compliance ratings in relation to insight and outcome (Predictions 5.2)

Patients' ratings of their compliance with medication on the CRS and follow-up appointments at baseline, and the reason for lack of compliance when compliance was poor are shown in Table 5.6 below. Frequencies and percentages of compliance ratings at outcome are also indicated. The percentage of complete refusal to medication showed a significant drop from 41.6% at baseline to 18% at the outcome interview 6 months later ($p<0.001$, McNemar test), with many more patients becoming more 'passive acceptors' and 'moderate participators'. There was also a significant increase in the number of patients who were attending follow-up appointments regularly from 32.5% at baseline to 59.5% at follow-up ($p<0.001$, McNemar test) and also a significant decrease in defaulters from 46.7% to 15.3% ($p<0.001$, McNemar test) at the outcome interview. As shown earlier, this improvement does not seem to be the result of the psychoeducation intervention programme.

For Prediction 5.2.1, when patients were divided into compliant (rating on the CRS equal to or greater than 5) and non-compliant (rating on the CRS equal to or less than 4) groups, Mann-Whitney U-tests showed that there was no significant difference between compliant and non-compliant patients' symptomatology or overall functioning as predicted except for the baseline BPRS score (refer to Table 5.7). Hence, patients who were rated as compliant at the start of the study did have fewer symptoms but were not

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Table 5.6
Patients' Compliance with treatment at baseline (N=197) & at outcome (N = 189)

	Frequency baseline N=197	**Percentage**	**Frequency** outcome N=189	**Percentage**
Compliance with medication:				
Complete refusal	82	41.6	34	18.0
Partial refusal	27	13.7	12	6.3
Reluctance acceptance	23	11.7	19	10.1
Occasional acceptance	14	7.1	19	10.1
Passive acceptance	21	10.7	47	24.9
Moderate participation	22	11.2	45	23.8
Active participation	8	4.1	13	6.9
Reason if compliance is poor:				
N/A	43	21.8		
No insight	127	64.5		
Side-effects	13	6.6		
Cultural & religious reasons	7	3.6		
No supervision	4	2.0		
Others	3	1.5		
Frequency medication missed:				
N/A	22	11.2		
Very rarely	31	15.7		
Sometimes (< twice a week)	50	25.4		
Often (> twice a week)	94	47.7		
Compliance with follow-up appointments:				
Regular	64	32.5	113	59.8
Irregular	41	20.8	47	24.9
Defaulted	92	46.7	29	15.3
Do you think you have a mental illness (Q1 of Part III for baseline & question asked at outcome interview):				
Yes	59	29.9	64	33.9
No	133	67.5	123	65.1
Unsure	5	2.6	2	1.1

functioning better socially or occupationally than those rated as non-compliant. Whether or not patients were compliant at baseline did not have any effect on their outcome in terms of symptoms and overall functioning. There was also no significant difference between compliant and non-compliant patients in terms of rehospitalizations and community tenure whether or not they were compliant or non-compliant at the start or end of the study 6 months later. Prediction 5.2.1 was thus not supported.

The association between compliance at baseline and outcome was found to be significant using the chi-square test (OR=4.7, 95% CI = 2.2 to 10.2, $p<0.001$) ie those who complied /did not comply with medication at baseline behaved likewise at outcome.

Compliance and awareness of having a mental illness was also found to have a significant association – those who are non-compliant did not think they have a mental illness and those who are compliant did perceive that they do have a mental illness both at baseline (OR=2.8, 95% CI=1.4 to 5.5, p=0.002) and at outcome (OR=3.6, 95% CI=1.8 to 7.0, $p<0.001$).

Between the compliant and non-compliant groups, significant differences were found with regard to their insight into their illness (Prediction 5.2.2); compliant patients had significantly higher scores on the total scores of the Birchwood Insight Scale both at baseline and at outcome than non-compliant patients. As indicated in Table 5.7 below, on the subscales of the Birchwood Insight Scale, Mann-Whitney U-tests showed that compliant patients were significantly more able to relabel their illness, more aware that they had a mental

illness and that they needed psychiatric treatment. These significant levels were retained at the outcome assessment of insight. These results further reinforce the above findings that patients who have better insight and are compliant at baseline will behave likewise at the outcome interview 6 months later.

Table 5.7 also shows that patients who were rated as compliant at the beginning of the study were found to be significantly more positive to medication than those rated as non-compliant, as indicated by Mann Whitney test results on the Drug Attitude Inventory (DAI-10). The association between compliance and side-effects as measured on the LUNSERS was also shown to be significant with compliant patients reporting significantly less side-effects to medication than non-compliant patients. Thus Prediction 5.2.2 was completely supported.

Table 5.7
Compliance ratings and outcome measures

	Baseline (N=197)		**Mann Whitney U**	**p**	**Outcome (N=189)**		**Mann Whitney U**	**p**
	Compliant mean (SD)	Noncompliant (mean, SD)			Compliant (mean, SD)	Noncompliant (mean, SD)		
BPRS	25.90	27.65	3004.00	*	26.37	27.43	3167.50	NS
GAF	51.94	41.20	3172.50	NS	53.08	49.50	2970.00	NS
Birchwood Insight Scale								
Total score	7.57 (3.88)	3.93 (3.20)	1825.00	***	7.42 (3.81)	4.68 (1.52)	2074.50	***
Relabel	2.24 (1.64)	0.94 (1.32)	2122.00	**	1.56 (1.68)	0.95 (1.27)	2575.00	*
Awareness of illness	2.20 (1.42)	1.05 (1.41)	2491.00	**	1.63 (1.73)	1.05 (1.44)	2449.50	**
Need for treatment	1.57 (0.58)	0.97 (0.76)	2067.50	**	1.29 (0.74)	0.90 (0.73)	2097.50	**
DAI-10	7.76 (2.61)	4.43 (3.20)	1547.50	***	-	-	-	-
LUNSERS	15.29 (10.45)	19.83 (11.59)	2919.00	*	-	-	-	-
Rehospitalizations	-	-	-	-	0.45 (0.72)	0.47 (0.92)	4249.50	NS
Community tenure	-	-	-	-	121.63 (68.99)	144.65 (47.23)	3757.00	NS

* p<0.05
** p<0.01
*** p<0.001

Demographic factors and BPRS & GAF scores at baseline & outcome

In terms of severity of illness between male and female patients at baseline and at outcome Mann Whitney U-tests revealed that female patients had significantly higher BPRS1 scores than male patients ($p<0.05$) when they entered the study (refer Table 5.3) but the difference on the BPRS2 scores were no longer significant at outcome. In fact at outcome, males had a higher mean BPRS score (27.37) than females (26.90) suggesting that male patients had more symptoms than female patients 6 months later. Social functioning as indicated by GAF scores was not significantly different both at baseline and outcome between male and female patients. There was no significant difference between male and female patients with regard to number of rehospitalizations and length of community tenure. Prediction 5.3.1 has thus been partially supported.

No significant difference in BPRS scores was found between Chinese and Malay patients both at baseline and at outcome. Between the two ethnic groups there was no significant difference at baseline either on the GAF1 scores. At outcome, however, Chinese patients were functioning significantly better socially than Malay patients as indicated by the on the GAF2 scores with $p<0.05$ (refer to Table 5.3). There was no significant difference between the two ethnic groups in terms of rehospitalizations but as predicted, Malay patients had significantly shorter duration of community tenure than Chinese patients ($p<0.05$). Hence Prediction 5.3.2 was partially supported.

Causal beliefs & symptoms

At baseline:

Contrary to Prediction 5.4.1, use of a non-parametric test of correlation showed that patients who endorsed more biological causes did not have significantly lower scores on the BPRS1 nor higher GAF1 scores than patients who endorsed more of the other causes at the first interview (refer to Table 5.8).

Patients who endorsed more supernatural causes did have significantly higher BPRS1 scores ($p<0.001$) as indicated by the positive correlation but the score on the GAF1 was not significantly lower (refer Table 5.8 below). This finding suggests that patients who believed more in supernatural causes had more symptoms of the illness although their social functioning was not significantly lower than other patients who did not endorse significantly more supernatural beliefs. Correlation between intrapsychic causal beliefs and the BPRS1 and GAF1 was not significant. Similar to the finding of the supernatural causes, there was a significant positive correlation ($p<0.01$) between psychosocial causes and BPRS1 suggesting that patients who endorsed more psychosocial causal beliefs did have significantly more psychiatric symptoms. The GAF1 was, however, not significant. Prediction 5.4.2 was hence partially supported

At outcome

At the outcome interview, patients who endorsed more biological beliefs did have a significantly better outcome than patients who endorsed more of the

other beliefs, in terms of social, occupational and psychological functioning as indicated by the positive correlation; the BPRS scores were, however, not significantly lower. This finding partially supported Prediction 5.4.3. The supernatural and intrapsychic causal beliefs were not significantly correlated with the BPRS2 and GAF2 scores. There were, however, significant correlations between outcome GAF scores and causal beliefs in the state of society category ($p<0.05$) and in the socialization category ($p<0.01$).

There was no significant correlation between any of the 7 categories of causal beliefs and number of rehospitalizations and length of community tenure, suggesting that beliefs do not impact on these outcome measures (refer to Table 5.8 below). Thus most of Prediction 5.4.3 has not been supported.

Table 5.8
Correlation between causal beliefs and BPRS and GAF scores, rehospitalizations & community tenure at baseline & at outcome

Categories of beliefs	Baseline (N=197)				Outcome (N=189)							
	BPRS1		GAF1		BPRS2		GAF2		Rehospitalization		Community Tenure	
	rho	p	rho	p	rho	p	rho	p	rho	p	rho	p
<u>Causal beliefs</u>												
1. Supernatural	0.202	**	-0.056	NS	0.088	NS	-0.066	NS	0.008	NS	-0.068	NS
2. Intrapsychic	0.089	NS	0.106	NS	0.045	NS	0.128	NS	0.057	NS	0.018	NS
3. Psychosocial	0.219	**	-0.104	NS	0.067	NS	0.007	NS	0.000	NS	0.071	NS
4. State of Society	0.013	NS	0.089	NS	-0.031	NS	0.159	*	0.018	NS	0.142	NS
5. Financial Pressure	0.043	NS	0.029	NS	0.043	NS	0.059	NS	0.009	NS	0.029	NS
6. Biological	-0.015	NS	0.137	NS	-0.049	NS	0.251	**	0.070	NS	0.011	NS
7. Socialization	0.067	NS	0.019	NS	-0.115	NS	0.228	**	-0.082	NS	0.068	NS

* p<0.05
** p<0.01
*** p<0.001

Treatment beliefs & symptoms

Much of Prediction 5.5.1 was supported in that patients who endorsed more professional mental healthcare treatment methods did have significantly lower BPRS1 than patients who endorsed more psychosocial and supernatural treatment methods at the first interview (refer Table 5.9 below). There was also a significant positive correlation between professional treatment methods and GAF1 scores. This correlation was maintained at the outcome interview 6 months later for the GAF2 scores which had become even more significant but the significant correlation with the BPRS2 scores was not maintained. Thus patients who believed in professional mental healthcare treatment had less psychiatric symptoms at baseline and were functioning significantly better both at baseline and at outcome than those who have less confidence in this method of treatment.

It is interesting to note, however, that patients who endorsed psychosocial and supernatural treatment methods also had significantly better overall psychological and social functioning at baseline. This significant correlation was maintained at outcome for those who endorsed more psychosocial causes but not for those who endorsed more supernatural causes. Unlike the patients who had more confidence in professional treatment approaches, however, the mental state of these patients (ie BPRS1 scores) was not significantly better.

Beliefs in the 3 different treatment approaches did not have any effect on the number of rehospitalizations nor on the duration of community tenure except in one area where a significant correlation was found between psychosocial

treatment methods and community tenure ie when patients believed significantly more in psychosocial treatment approaches, they stayed longer out in the community.

Table 5.9
Correlation between treatment beliefs and BPRS and GAF scores, rehospitalizations & community tenure at baseline & at outcome

Categories of treatment beliefs	Baseline (N=197)				Outcome (N=189)							
	BPRS1		GAF1		BPRS2		GAF2		Rehospitalization		Community Tenure	
	rho	p	rho	p	rho	p	rho	p	rho	p	rho	p
1. Professional mental healthcare	-0.204	**	0.177	*	-0.127	NS	0.226	**	0.079	NS	-0.013	NS
2. Psychosocial	-0.074	NS	0.215	**	-0.087	NS	0.219	**	0.001	NS	0.198	**
3. Supernatural	0.017	NS	0.143	*	-0.017	NS	0.059	NS	-0.002	NS	0.058	NS

* p<0.05
** p<0.01
*** p<0.001

Insight, attitude, side-effects and causal beliefs

Using a non-parametric test of correlation, it was shown that patients who endorsed more biological beliefs did have better insight ie higher total scores on the Birchwood Insight Scale (rho=0.385, p<0.001). There was also a significant positive correlation when patients endorsed professional treatment methods (rho=0.636, p<0.001) thus supporting Prediction 5.6.1.

The relationship between good insight and outcome measures was significant only on the GAF2 (rho=0.231, p<0.001) ie better insight as indicated by a higher score on the Insight Scale had the effect on better overall functioning but not on symptomatology, number of rehospitalizations or duration of community tenure as predicted in 5.6.2.

A higher score on the Drug Attitude Inventory which indicates a more positive attitude towards medication is likely to lead to better compliance and hence less psychiatric symptoms and better functioning. Non-parametric test of correlation showed this prediction (5.6.3) to be supported for both the baseline BPRS1 (rho=-0.236, p<0.01) and the GAF1 (rho=0.178, p<0.05) and for the outcome GAF2 (rho=0.206, p<0.01,); the correlation with the BPRS2 was not significant. A positive attitude was positively correlated with the number of rehospitalizations (rho=0.143, p=0.05) which was quite unexpected. Correlation between attitude and length of community tenure was not significant.

It was further hypothesized that patients tend to be non-compliant with psychiatric treatment if they experienced unpleasant side-effects to their medication. This non-compliance would increase their psychiatric symptoms and

lower their overall functioning. This prediction (5.6.4) was found to be supported only for symptomatology; there was a significant positive correlation between the LUNSERS scores and the BPRS both at baseline ($rh0=0.335$, $p<0.001$) and outcome ($rho=0.203$, $p<0.01$) interviews ie the more side-effects the higher their symptoms. Side-effects proved to have no significant effect ($p>0.05$) on the GAF scores, the number of rehospitalizations and length of community tenure.

Caregivers' beliefs and patients' outcome

The hypothesis that caregivers' beliefs about the causes of the patients' schizophrenic illness and their beliefs about treatment approaches will affect the outcome of the patients' illness was not strongly upheld. Non-parametric test of correlation on the caregivers' endorsement on the 7 categories of causal and 3 categories of treatment beliefs did not show any significant effect on outcome except in two areas. Results in these two areas showed that when caregivers endorsed more biological beliefs, patients had a significantly higher number of rehospitalizations ($rho=0.320$, $p<0.01$). A negative correlation indicated that when caregivers believed more in professional mental healthcare treatment approaches, patients had a significantly lower level on their overall functioning (GAF2 scores) at the 6-month follow-up interview ($rho=-0.248$, $p<0.05$); both these findings seemed rather contrary to expectations.

DISCUSSION

Chapter 5 has described the study in which the influence of various factors on a cohort of patients admitted to Woodbridge Hospital on the course and outcome of their schizophrenic illness was examined. This study focused in particular on the cultural aspects of the two main ethnic groups in Singapore. Some interesting results especially with reference to causal beliefs that seem to be peculiar to the Singaporean patient population have been found. These will be discussed according to the model and three pathways proposed for this study; other factors that have been shown to influence outcome will also be discussed.

Patient Education Programme

The Patient Education Programme (PEP) used as the intervention in this study was shown to have no significant effect on the course and outcome of the patients' schizophrenic illness. Rehospitalizations were not significantly less nor community tenure longer for those patients who were included in the PEP. PEP also did not have any significant impact on insight, compliance, severity of illness or social functioning of the patients at outcome. This may be due to the contents or style of delivery of the programme. However, this finding is based on a 6-month follow-up which may not be long enough for the impact of the intervention to take effect.

It was noted that the emphasis of the PEP was mainly on the biomedical model of schizophrenia. Although there was a local flavour to it in terms of Asian family values and the Asian type of assertiveness in anger management, the

issue of cultural and religious beliefs was not addressed. Unlike Kemp et al's (1996) compliance therapy which yielded significant and lasting positive effects, patients in the PEP were not given an opportunity to talk about their own explanatory models for their illness; it was generally more of a didactic programme rather than interactive. An interactive model of psychoeducation advocated by Tarrier & Barrowclough (1986) could perhaps encourage better participation, cooperation and compliance.

Macpherson et al (1996) found that three sessions of education led to significantly increased insight as measured on the Schedule for Assessment of Insight (David, 1990), but no change in compliance. They used the Understanding of Medication Questionnaire (Macpherson et al, 1996) which measured knowledge of antipsychotic treatment and encouraged participation and involvement in the sessions through questions and answers. Although the patient education led to no change in compliance, they argued that the sessions did help engage patients, improve acceptance and integration of the illness and promote appropriate use of drug therapy. They also held that it demystified mental illness and may reduce stigma.

It is postulated that when patients are given a chance to explore their own beliefs, they are likely to become more aware of the possible "unreasonableness" of their own explanations and may hence be more open and receptive to alternative explanations. When given a choice, they are more likely to internalize these alternative explanations to replace or "supplement" their own beliefs. It is also possible that when patients' beliefs are respected and not devalued, they

are more likely to be willing to respect and give credence to the mental health professionals' explanations for their illness. This contributes to a positive therapeutic alliance which is likely to enhance compliance with medication and hence improve course and outcome of the illness.

It is believed that a better understanding, some knowledge and respect for patients' and their caregivers' beliefs and cultural practices can enhance compliance with psychiatric treatment. By incorporating an understanding of patients' and caregivers' beliefs into the psychoeducation package and to the overall approach, patients and caregivers can be engaged as "co-workers" in a collaborative effort to improve the course and outcome of the schizophrenic illness.

Hence, a psychoeducation approach that is sensitive to each ethnic group's beliefs and allows for exploration & "rethinking" would be more effective in modifying inaccurate beliefs and influencing help-seeking behaviour.

Ideally the psychoeducation package given in Woodbridge Hospital should be re-designed in the light of the findings, with a more culturally-sensitive and interactive approach that would still incorporate the biopsychosocial model yet empowers and encourages the patients to take an active role in helping themselves. The benefits of having joint Chinese and Malay psychoeducation sessions far outweighs individual ethnic group sessions as there is a strong prevailing 'racial bond' within the Singaporean population despite the ethnic differences; members of different ethnic groups often share their own ethnic groups' coping approaches and these are often well-received and appreciated.

Besides psychoeducation, cognitive behaviour therapy approaches have been advocated to help patients deal with their illness (Kingdon & Turkington, 1994; Fowler et al, 1995) and cope better with their positive and negative symptoms (Tarrier et al, 1993; Garety et al, 1994; Turkington & Kingdon, 1996). Cognitively-oriented therapy that encourages the patients to reconsider their beliefs and behaviours in order to enhance compliance with medication would be useful as shown in Kemp et al's (1996) approach. Their motivational interviewing techniques have produced results proven to sustain over time. Cognitive therapy for the psychosis to address the patients' depression, hopelessness and suicidal thinking, and their appraisals of the self and the psychosis, and to enhance control over psychotic relapse, is now widely used, especially as a psychological treatment approach for early psychosis (Birchwood, 1995; Chadwick, Birchwood & Trower, 1996; Drury et al, 1996). Based on this therapy, various techniques like Jackson's Cognitively Oriented Psychotherapy for Early psychosis (COPE) (Jackson et al, 1996), recently modified to Active Cognitive therapy for Early psychosis (ACE) (personal communication) have been developed. ACE was developed as a consequence of the results of a study using COPE. It was concluded that psychotherapy should be delivered at a much earlier stage of the psychosis with the likely effect of reducing the duration of active psychosis (Jackson et al, 1998). This new approach was also simplified to provide for a more practical approach. A culturally-sensitive approach as that taken by Razali et al (1995) will also be appropriate for the culturally-diverse Singaporean population.

Hence, a revamping of the current psychoeducation package conducted in Woodbridge Hospital and the introduction of more psychological interventions as mentioned above would likely contribute to better compliance with psychiatric treatment among patients with chronic schizophrenia and pre-empt non-compliance among patients with early psychosis.

From the results in relation to caregivers, it appears that caregivers' beliefs do not impact very much on the patients' outcome. Nonetheless, the evidence from this study showed that caregivers have attributed the causes of schizophrenia mainly to the patents' weakness of character (Intrapsychic causes). As the results of Seng & Bentelspacher (2001) study have shown, Singaporean caregivers do experience a great deal of stress and a heavy burden of care in looking after their relatives with schizophrenia. Hence, family psychoeducation and therapy to support caregivers and reduce or pre-empt undesirably high levels of EE and/or rejection would be beneficial both for the caregivers and the patients as well. In dealing with the caregivers and family members of Asian patients, however, one would need to be aware of and sensitive to the prevailing cultural influence of "loss of face" and stigma particularly amongst the Chinese and the religious attributions by the Muslims to the "will of Allah".

Compliance ratings and outcome (Pathway 1: via compliance)

No significant evidence for Pathway 1 was found within the data with regard to compliance ie compliance had no direct effect on outcome. Some interesting findings will, however, be discussed.

The results suggest that patients who are initially compliant will behave likewise later on in the course of their illness. These patients seem to have more awareness and insight into their illness. As reported, this is not due to the effect of psychoeducation in this study. They were also shown to hold a more positive attitude towards taking medication.

Considering that the cohort of patients under study have had a relatively long duration of illness, it seems that once patients have been convinced about the effectiveness of psychiatric treatment, this conviction seems to last through the course of their illness. It would appear, therefore, that educating and convincing patients at an early stage of their illness is an important factor. This can be more effectively done within a positive therapeutic relationship in which the mental health professional has some knowledge about the patient's belief system about causes and treatment for the illness. When patients are engaged in the treatment of their own illness and empowered to discuss their treatment, when they are allowed to explore and negotiate, it is more likely that they will modify their beliefs.

Such negotiations, for example, may mean that psychiatrists will grant patients home leave during the period of hospitalization to be taken by relatives to consult traditional healers on the understanding that they will continue taking

their medication while on leave and that they will return to the hospital to stay until they are fit for discharge. Or in another scenario, psychiatrists may be asked by outpatients and their relatives about taking traditional medicine while on antipsychotics. Showing some interest and knowledge about the traditional "medicines" or rituals commonly used and allowing patients to continue practicing or taking such traditional medicines which are known not to be contraindicated while continuing with the prescribed medication would contribute to attaining a collaborative and cooperative alliance with the patients and their relatives in managing the patients' illness. At the same time efforts to educated patients and caregivers on the importance of medication should be ongoing.

It is unclear what caused the improvement in patients' compliance with medication and follow-up appointments, and reduced the "refusers" and defaulters amongst this cohort of patients at the 6-month follow-up. As results have shown that the PEP had no significant impact, it is possible that being in the study itself, being asked about their beliefs about causes and treatment, being given more consultation time and being in more frequent contact with a mental health care professional could have contributed to the improvement. But this effect, if at all, may just be transient as there is no significant difference in length of community tenure and number of hospitalization between compliant and non-compliant patients. This may, however, be due to the relatively short duration of follow-up.

Results obtained from the analyses of the BPRS and GAF scores seem to suggest some interesting conclusions. For example, the baseline GAF scores of

male patients were not significantly higher than the GAF scores of female patients despite male baseline BPRS scores being significantly lower. This goes to show that patients who have less psychotic symptoms do not function significantly better than patients with more psychotic symptoms. One of the explanations could be that having been ill for such a long duration, patients have lost their premorbid functioning skills, or in some cases, have not attained a good level of functioning despite being mentally stable and relatively free from psychotic symptoms. This finding is consistent with the results of various long-term outcome studies (eg, Wing & Brown, 1970; Carpenter & Strauss, 1991; Harrison et al, 1996) which have demonstrated that measures of social and clinical outcome are only moderately interlinked.

In this study, the results showed that, contrary to what was predicted compliance with medication did not have any effect on outcome. There are several possible reasons for this. One could be that the patients are not being properly medicated or are under-medicated; medication could have been reduced by the clinician owing to adverse side effects caused by the typical antipsychotics which are generally prescribed in Woodbridge Hospital. This probably accounts for no significant change in their BPRS and GAF scores at the 6-month follow-up outcome interview and also for the lack of significant difference in rehospitalizations and length of community tenure between "compliant" and "non-compliant' patients. Other studies, however, have shown that compliance is not associated with symptomatology or illness severity following discharge from inpatient care (Bartko et, 1988; Van Putten et al, 1976).

Van Putten et al have in fact suggested that the psychotic symptoms of some regular medication refusers may be comforting or ego-syntonic. The survival analysis results of Kemp et al's (1998) study revealed that patients who underwent compliance therapy had a significantly higher duration of community tenure over an 18-month period which suggests that effects of compliance interventions in relation to symptomatology should ideally be assessed over longer periods of time. While they showed that these patients retained improvement in their attitudes towards drug treatment and in their insight into illness compared to the control group at 6 months, social functioning only showed a tendency to improve and no mention was made of symptomatology. At the 18-month follow-up, no significant difference was found between the compliance therapy group and the control group in overall time spent in hospital over the follow-up period. Hence, the results of this study that compliance is not directly related to outcome are not inconsistent with those of other studies.

Secondly, patients may not be responding truthfully to the Compliance Rating Scale; they may not actually be taking their medication regularly as claimed. They may perhaps feel obliged to say to a mental health professional interviewer that they are compliant because they may perceive that that is required of them. The measurement of compliance based on information from a number of sources has been a methodological issue (Kemp et al, 1998). The lack of a direct compliance measures is a weakness in this study although other measures also do have their drawback.

Thirdly, considering the prescribing pattern of clinicians in Woodbridge Hospital where polypharmacy is commonly practiced, patients are often prescribed oral medication on top of the depot they receive regularly. It is possible that patients think they are compliant for as long as they get their depot injections even though they do not take their oral medication which they may feel is superfluous. In this instance, they may be under-medicated. Porter (1969) has suggested that the probability of compliance is inversely proportional to the number of drugs prescribed and the frequency with which they are to be taken. Although some studies have failed to demonstrate this (eg Buchanan, 1996) it has been suggested that this could be due to other confounding factors (MacPhillips & Sensky, 1998). Blackwell (1976) has encouraged the use of once-daily regimens to aid compliance as almost 60% of patients have difficulty in understanding and following simple dosage instructions (Boyd et al, 1974). This has also been advocated by Razali & Yahya (1995) in their drug intervention and counselling programme.

The findings of compliance in relation to insight, consistent with Kemp et al's (1996, 1998) studies, indicate that greater insight will enhance compliance. Cognitive impairments are frequently found in schizophrenia and it is possible that impaired ability to assess the risks and consequences of relapse might predispose patients to poor compliance. It has also been speculated that negative symptoms can cause patients to become passively noncompliant through poor motivation and apathy with medication and follow-up appointments (MacPhillips& Sensky, 1998). Therefore, if insight can be helped to improve

through the appropriate approaches in psychoeducation and psychotherapy, compliance and hence, outcome can also be enhanced. As shown in this study, compliance is likely to be maintained through the course of the illness. It should, therefore, be encouraged early in the illness.

The significantly positive association between attitude towards medication and compliance has important implications in that the earlier a positive attitude is inculcated or "cultivated" (with due consideration given to cultural aspects), the better will be the compliance and outcome. The positive correlation between attitude and rehospitalization suggests that when patients had a positive attitude towards medication, they had a greater number of rehospitalization. This seems contradictory to the logical expectation that patients with a positive attitude towards medication would be more compliant and require less rehospitalization. It appears that these patients seem to be more willing to be admitted to the hospital perhaps because they have confidence in the biomedical model of treatment.

Similarly, the significant negative association between side-effects and compliance suggests that it is important that the occurrence of side-effects should be closely monitored and reduced early in treatment in order to encourage compliance with medication. Given the prescribing pattern of the clinicians in Singapore, it would not be surprising if patients were to report a great deal of side-effects. Therefore, not only should side-effects be monitored but clinicians should be made to be more aware of the effect that these side-effects have on patients' compliance and make attempts to change the medication or

titrate dosages to reduce side-effects as much as possible. Ideally, with the introduction of the atypical antipsychotics as standard drugs, side-effects should be less of a problem.

Demographic factors and BPRS & GAF scores (Pathway 2: effects of ethnicity)

Gender and ethnicity do not have any significant effect on the severity of patients illness (on the BPRS scores) in this cohort of patients, unlike Sellwood & Tarrier's study (1994) which found significant effects of ethnicity in their study. It is possible that whereas their non-white patients were part of the minority of the population subjected to different perceptions by white psychiatrists, the two ethnic groups in this study are in quite different circumstances from their sample.

Malays in the Singaporean population, though smaller in numbers, are not considered a disadvantaged minority of the population and are viewed as equal to the Chinese. There are, however, quite obvious cultural differences in that the Chinese are generally and traditionally more competitive and materialistic, blaming themselves if anything goes wrong compared to the Malays who are generally and traditionally more easy-going on themselves and on others, more religious and less "worldly". This could possible account for Chinese patients functioning significantly better socially at outcome than the Malays as Chinese relatives are less accepting of patients "idling" around at home and are likely to encourage or "push" the patients, and Chinese patients themselves would be more keen to "get on" with finding a job and earning some money. Malay relatives, in contrast are more accepting and tolerant of patients staying at home,

helping with household chores and not earning any income, attributing their situation to fate or the "will of Allah". Malay patients themselves are also quite comfortable being at home, unmotivated to help themselves function at a higher social level partly because their relatives are so accepting of them. Despite this, however, results of this study have shown that Malay patients had significantly shorter duration of community tenure than Chinese patients.

This may be due to a number of factors. Although the Malay and Chinese patients did not differ significantly at baseline in their BPRS and GAF scores, the Malay patients could have had a greater severity of illness to begin with. Unfortunately, the duration of untreated psychosis which is a strong predictor of outcome (Birchwood & Jackson, 2001) could not be established with certainty in these patients.

Another reason may be the erosion of the traditional Malay values in a rapidly developing and increasingly competitive society, resulting in a decreased tolerance for a family member who is mentally ill and not functioning optimally. Yet another reason may be the shift of the population into high-rise housing with limited living space compared to the more spacious accommodation of the traditional Malay *kampongs* or villages. All these factors could have contributed to the significantly shorter duration of community tenure of Malay patients compared to the Chinese patients.

Herein, perhaps, lies the effect of ethnicity on outcome ie the outcome GAF scores and community tenure. It goes to show that probably the burden of care can be "over-heavy" and tolerance also has its limits. Support for caregivers

at an early stage, preferably from the outset and before rejection sets in is, therefore, an important aspect of patient management.

Patients' beliefs (Pathway 2: effects of beliefs on outcome)

The fact that Chinese patients believe significantly more than Malay patients in biological causes of their illness (refer to table 4.9) suggest that they are more likely to be more compliant with a biomedical treatment approach, ie psychiatric treatment, and have a better outcome. Malay patients' endorsement of significantly more supernatural causal beliefs of their illness seems to suggest that they are less likely to be compliant with the biologically-oriented psychiatric treatment approach. This was evident in that those who endorsed more professional treatment methods had better outcome in term of higher GAF scores at outcome (refer to Table 5.9). Patients with higher outcome scores on the GAF endorsed significantly more biological, socialization and state of society beliefs. Chinese patients also endorsed significantly more psychosocial treatment beliefs (refer to Table 4.16) and Table 5.9 shows that those who endorse more psychosocial treatment beliefs seem to function significantly better than those who endorse supernatural treatment beliefs. Chinese patients have also endorsed significantly more psychosocial and also more state of society and socialization beliefs than Malay patients (refer to Table 4.9). It seems that patients who endorse more biological, state of society and socialization causal beliefs and more psychosocial treatment beliefs seem to have significantly higher GAF scores.

Once again, this may be attributed to cultural differences between the two ethnic groups. Persuasive methods of educating and engaging patients, taking into account their beliefs, so that they are more compliant with psychiatric treatment would potentially improve the course and outcome of their illness.

The significant positive correlation between psychosocial treatment methods and community tenure seems to suggest that those patients who believe significantly more in such treatment approaches tend to remain longer in living within the community.

Duration of illness and beliefs

Results reported in Chapter 4 between duration of illness and beliefs suggest that it does not necessarily follow that the longer the patients have had the illness, the more likely they are to believe biological or medical explanations for their illness, despite having received psychiatric treatment for a long period of time. But the results have also shown that despite not believing in medical causes, patients with longer duration of illness do believe more in the effectiveness of professional mental health care methods of treatment. So beliefs in causes need not correlate with beliefs in treatment.

These results, however, do indicate that beliefs do, to a certain extent, affect patients' compliance with medication, BPRS scores (symptomatology) and outcome. This is further evidenced by the significant correlation between beliefs in professional mental healthcare treatment methods and lower BPRS and higher GAF scores both at baseline and outcome. Patients who did not endorse

significantly more of these treatment methods were found to have poorer overall outcome, which emphasizes the importance of inculcating a belief in the effectiveness of medication.

Responses to questions in Part III of the Beliefs Questionnaire

There seems to be some consistency in the way patients either believe or do not believe they have a mental illness in relation to their own beliefs about the causes of their illness. Results have shown that, similar to Kua et al's (1993) study, a high percentage have actually consulted traditional and religious healers prior to seeking help from psychiatric services. This could have lengthened the duration of untreated psychosis which could lead to frequent relapses, treatment resistance and early disability (Shepherd et al, 1989; Wiersma, 1998; Birchwood & Jackson, 2000), and adverse outcome (Johnstone et al, 1986; Helgason, 1990; Loebel et al, 1992; McGorry, 2000; Birchwood & Jackson, 2000).

Patients' & caregivers' beliefs: (Pathway 3: effects of caregivers' beliefs)

It was quite unprecedented that caregivers' causal and treatment beliefs did not affect the patients' outcome significantly except in two areas. It may be possible that caregivers and patients through the years have become detached and indifferent towards each other to the extent that there is no longer any significant effect of caregivers' influence (their beliefs, advice, actions) on the patients' outcome.

However, the finding that patients with caregivers who endorsed significantly more biological causal beliefs had a significantly higher number of rehospitalizations was rather unexpected. It is speculated that when caregivers strongly endorse the biomedical model of the illness, they could be so convinced about it that as soon as the patient shows any sign of impending relapse they would immediately opt for him to be admitted to the hospital.

The result that patients with caregivers who believed more in professional mental healthcare treatment approaches had a significantly lower level of functioning was also unprecedented. It is possible that caregivers who have great confidence in psychiatric services would immediately refer the patients to professional mental health caregivers whenever they perceive that the patients appear unwell or are not functioning well. This may cause patients to be overly dependent on the system and not allow them to deal with the illness themselves or learn to be more independent. In the light of these findings, it would seem paradoxically, that having too strong a belief on the biomedical model can sometimes be counter-productive as psychosocial and other possible causes of relapses have been overlooked; such caregivers would benefit from family psychoeducation. Another possibility, however, could be that caregivers prefer to relieve themselves of all responsibilities toward the patients and instead expect mental health caregivers to take over the overall management of the patients.

This could be also be the effect of high expressed emotion, overinvolvement or lack of tolerance. The lower level of functioning could be related to expressed emotion within the family. Caregivers with high EE may be

over-protective, not allowing the patient to function optimally ie being independent or employed, or they may be over-critical thereby causing interpersonal relationship problems and lowering the GAF scores. Linszen et al (1994) have found that EE changes over time from the first episodes of psychosis. Hence Birchwood (1999) has suggested that understanding the early development of family relationships is important to prevent their entrenchment. Family psychoeducation and therapy, supporting the caregivers, encouraging them to form or join self-support groups may help in modulating their involvement with the patient and reducing the burden of care.

There seems to be an obvious discrepancy between the patients' perception of themselves in terms of mental illness and their caregivers' perception. This may be attributable to a lack of insight and/or denial on the part of the patients, which would not be unexpected considering the nature of the schizophrenic disorder. Caregivers would be expected to be more insightful and realistic.

Despite multiple relapses and readmissions mainly owing to non-compliance with medication and follow-up treatment, both patients and caregivers have indicated that they feel that their psychiatrists do respect and understand their beliefs. This may, however, only be an artifact and the truth may be that in an Asian society, doctors are perceived as authorities who know best and should be respected at all times. Hence, Asians are likely to "pay" such authority figures the "due respect" even though they may not really believe in the treatment prescribed by the doctors.

CONCLUSION

The results of this study have shown that cultural factors like ethnicity and beliefs of patients (Pathway 2) and their caregivers (Pathway 3) do affect the outcome of the schizophrenic illness to a certain extent. This is especially prominent in a multi-ethnic and multi-religious country like Singapore where traditional and religious beliefs and rituals are still very much practiced. Consistent with the findings of the WHO studies (WHO, 1979; DOSMD: Jablensky et al, 1992; Hopper & Wanderling, 2000), the results of this study have shown that there are cultural factors that influence the outcome of individuals with schizophrenia.

The clinical implication of these results is that much can and should be done to improve compliance with psychiatric treatment without devaluing or offending the cultural beliefs and values of each ethnic group. Psychiatric treatment here refers not solely to medication. This study has shown that compliance with medication per se did not have a direct effect on outcome (Pathway 1), but if patients continue to be in touch with the psychiatric services, they can be monitored for relapses and guided into a better reintegration into the community through continued psychological interventions and psychoeducation when necessary. It is also very likely that compliance with maintenance medication will further improve the course and outcome of their illness. Much of this can be achieved through being aware and sensitive to the beliefs and values of the different ethnic groups, developing a positive therapeutic and collaborative relationship with patients and their caregivers which would enhance compliance

and improve the course and outcome of the illness. The Beliefs Questionnaire is a useful tool which can be used to explore the beliefs of patients and their caregivers, as a starting point in developing a good working relationship with the patients.

An innovative approach in the management of schizophrenia in Singapore is to collaborate with the traditional healers. In fact steps have already been taken in that direction. Dialogue sessions with Traditional Chinese Medicine (TCM) physicians have already been initiated by members of the Early Psychosis Intervention Programme (EPIP) team in Singapore. The TCM physicians have shared their approaches and limitations in handling patients with hallucinations, paranoia and delusions. A referral system is being set up and strategies to convince reluctant patients to agree to psychiatric treatment are being discussed. Patients will not be discouraged from continuing with treatment from TCM physicians while under psychiatric care where there are no contraindications. Plans are being made to liaise with Malay traditional healers but this has proved to be more difficult as they do not have an association of *bomohs*. Another approach would be to initiate dialogues with religious Islamic officials. Hence, the findings and "leads" from this study will prove to be helpful when such collaborative efforts are being made.

Insight, attitude towards medication and side-effects of medication have also been shown to influence the outcome of this cohort of patients. Taking steps in relation to these factors to enhance compliance at an early stage can improve the outcome of patients.

The main limitation of this study is that the sample size is not large enough to investigate the effects of interactions between the various factors likely to be affect outcome in patients. This study has examined only the impact of individual factors on outcome. In a real world situation, there is the additive effect of multiple factors which would potentially affect the patients to an even greater extent. Furthermore, it is likely that there is a complex interaction among these factors which will affect the outcome. The 6-month duration of this follow-up study may not be long enough for long-term effects of interventions to be sufficiently measured or for observations and conclusions to be made. Future research over a longer follow-up duration with a larger sample to provide a clearer picture of the interaction of these factors would be useful. The results of this study, however, have given a background picture and set the ground for further research.

Patients may also differ in the severity of their illness. Although the baseline psychopathology and social functioning were measured using the BPRS and the GAF, other indicators of illness severity like duration of untreated psychosis and number of relapses were not determined. These indicators were difficult to obtain and measure accurately in the present study. Although information on duration of illness for the patients was obtained from the casenotes based on their first contact with Woodbridge Hospital, there was no certainty that this information is accurate. There could have been several years of insidious onset of the illness prior to their contact with the psychiatric services

and many of the patients' caregivers were not available to provide or confirm this information.

Another shortcoming is the fact that the patients in the sample are generally chronic patients, just recovering from an acute psychotic episode or may still be psychotic. The reliability of their responses may, therefore, have been affected by the illness. It is possible that their beliefs may be delusions which made them discount causal beliefs in the biological category and in turn accounted for the low ratings in this category; this is despite their long exposure to the biomedical model and the psychiatric services. These 'unreliable' beliefs could perhaps also account for the lack of correlation between patients' and caregivers' beliefs.

Quality of life of the patients was not examined as an outcome measure in this study. It would be an interesting aspect of the patients' subjective view of outcome. Patients' subjective perceptions are an important factor in determining outcome and should be explored in future research.

It is hoped that, with more research and interventions that are sensitive to the cultural and religious aspects of the various ethnic groups in Singapore, compliance with treatment and consequently, quality of life of patients with schizophrenia will improve as they are helped to cope optimally with an illness that has for a long time been deemed devastating, malignant, most tragic and "arguably the worst disease affecting mankind" (Nature, 1988).

Chapter 6

Conclusion

Introduction

The main aim of this research was to investigate the possible influences of the ethnicity of patients and their beliefs about the causes of their illness on the course and outcome of schizophrenia in Singapore. Lay beliefs have been examined and these beliefs provided the basis for the development of the Beliefs Questionnaire.

The Patients' Beliefs Questionnaire was administered to a cohort of 230 patients together with several other inventories that assessed the influence of other factors likely to affect outcome. The responses to the Beliefs Questionnaire revealed that the patient population in Singapore attributed the causes of schizophrenia to seven factors. The strength of the patients' beliefs in the seven categories of beliefs and the three treatment approaches also emerged from this study together with certain demographic differences. Caregivers' responses to the Caregivers' version of the questionnaire provided some insights into their beliefs.

Finally, patients' outcome in terms of illness severity, psychological and social functioning, and the number of rehospitalization and duration of community tenure were analysed in relation to the ethnicity and beliefs of the patients and also to various factors known to affect the course and outcome of schizophrenia.

The results of the three studies in this thesis have provided interesting and useful insights into patients' and caregivers' belief systems. These insights have important clinical implications and applications in the management of schizophrenia in Singapore. They also form the basis for further research and for guiding the direction of future research. Before discussing these implications, the reason for embarking on this research will now be discussed.

How the idea for this thesis came about

The idea of exploring the influence of ethnicity and beliefs about the causes of the illness in patients with schizophrenia originated with the observation made when working on the rehabilitation of these patients in Woodbridge Hospital. It was noted that most of the patients had been readmitted innumerable times when they relapsed while living with their families in the community. There was overwhelming evidence obtained from clinicians, the patients' casenotes and the patients' caregivers and sometimes from the patients themselves that their relapses were caused primarily by non-compliance with medication prescribed by the psychiatrists. There are, however, treatment-resistant patients who remain unwell despite being on regular medication. Some of the questions that came to mind when working with these chronically-ill patients centered around the patients' personal explanatory models for their illness, their explanations for not wanting to take their medication and also if there were any ethnic differences and cultural influences in the way they arrived at their explanatory models. Many of these patients had, during group therapy

sessions in the rehabilitation programme, expressed various reasons for their admission to Woodbridge Hospital, and these included being disturbed by "bad spirits" whom they have accidentally offended, being possessed or "charmed" and being affected by the stress of work, studies or interpersonal relationships. The realization that patients will benefit from talking about their personal explanations for their illness, and that these explanations could be captured in a more structured way was the impetus to explore the possibility of addressing these issues and generating clinically applicable methods of reaching out in relevant ways to improve compliance, reduce relapses and enhance the quality of life of these patients.

These repeated readmissions have over the years resulted in a gradual but obvious deterioration of the patient's functioning within the community, with the patient getting more chronically withdrawn and avolitional, resulting often in the rejection with time by the caregivers. The burden of care had indeed taken its toil on the caregivers as it became obvious that the illness was unremitting and the patient was "unsalvageable". The findings of Seng & Bentelspacher (2001) have provided the evidence that caregivers in Singapore are feeling the tremendous stress of this burden in caring for patients with schizophrenia. These caregivers were particularly stressed as the patients lived with them and family members often felt quite helpless and angry when entrusted with the responsibility of looking after the patients and having to put up with the odd and often undesirable behaviours of the patients.

The patients themselves, mainly single and unemployed, presented a picture of helplessness and hopelessness. In Tan et al's study (in press) outpatients with schizophrenia attending psychiatric outpatient clinics reported poorer quality of life compared to outpatients with other illnesses seen at general outpatient clinics in the community. The patients attributed this mainly to dissatisfaction with lack of family support and the paucity of family and other social interactions despite continuing to live with their families.

This "revolving door" situation where patients are brought into hospital, usually by caregivers and occasionally by the police for involuntary admission, stabilised and discharged again into the community seems to perpetuate the sense of hopelessness and contribute to a deteriorating course and poor outcome in the illness. Besides the usual causes of non-compliance when patients refuse to take their medication owing to side-effects and lack of insight, a sense of distrust, disbelief and lack of confidence in the psychiatric treatment seemed to be present.

It was this vague underlying sense, perceived while working on rehabilitation programmes with these patients that started off this study to investigate cultural aspects that could possibly influence the patients' attitude towards psychiatric treatment. The prevailing treatment approach based solely on procedures imported from the West may not be totally congruent with the beliefs and practices of the local population.

The very fact that the population in Singapore comprises people of Asian origins and the constant reminders of anthropologists not to ignore the cultural

influence on health beliefs all point to the need to focus on cultural aspects to examine why the "revolving door" situation still persists. This is in spite of continued reminders about the importance of compliance with medication by attending psychiatrists and other mental healthcare professionals through psychoeducation programmes.

Implications of the results

The results of the three studies conducted for this thesis have shown that the lay population, the patient population and their caregivers differ in emphasis on their beliefs about the causes of schizophrenia in Singapore. The differences probably reflect the way each group perceives the illness, considering that it is a mental illness that carries with it a strong stigma within this society. They may also reflect the coping mechanisms with which each group uses to deal with the illness. This overall picture of the attitude towards schizophrenia has important implications in the management of the illness with regard to the lay public, the patients and the caregivers. It provides policy makers within the Ministry of Health and other mental health service providers with a comprehensive picture of the needs of the community as a whole.

Implications of the lay beliefs study

The predictions in the lay beliefs study were supported. Consistent with the findings of other studies, the results of this study found that the lay population believed that psychosocial factors were the main cause of schizophrenia in

Singapore. This may be reflective of the Singaporean lay population's perception of the high level of stress prevalent in the community. This perception seems logical and is consistent with the stress-vulnerability model of schizophrenia which purports that an underlying vulnerability to the illness can be activated to produce psychotic symptoms by psychosocial stress (Zubin & Spring, 1977).

Biological causes and causes inherent in the character of the individual were considered second and third in order of frequency, similar to Angermeyer and Matschinger's (1994) study. The fact that biological factors were the second most frequently mentioned cause indicates that the beliefs of the lay public are fairly in line with the traditional teachings about the biomedical causes of schizophrenia, consistent with Patel's (2000) comment that mental disorders are more recognised as disturbances in health in developed countries than in developing countries.

The main difference lay in the fact that supernatural causes were more frequently mentioned in Singapore than in Germany or in most of the other countries, being the fourth frequently mentioned category. This suggests that beliefs in supernatural causes are still prevalent in Singapore to a greater extent than in developed countries. In Hong Kong, Chung et al's (1997) patient sample hardly mentioned any supernatural causal factors but about 53% of Razali et al's (1996) sample of patients in a developing country attributed their schizophrenic illness to supernatural agents. There is a need for public psychoeducational programmes to be aware of these beliefs and to address this sensitively. Results have also confirmed that certain demographic groups in the lay population tend

to believe more strongly in some categories of causes. This may be attributable to the influence of cultural or religious factors on these groups.

In summary, the findings of the lay beliefs study have given some useful insights into the beliefs of a sample of the Chinese and Malay lay population in Singapore. The beliefs elicited from this sample have provided the basis for the development of culturally-relevant beliefs questionnaire.

Development of the Beliefs Questionnaire

The prediction that the beliefs of the patients will fall into six categories as in Angermeyer and Matchinger's (1994) study was partially supported. Factor analysis of the patients' responses to the belief items in the questionnaire revealed that the patient population in Singapore perceives that the causes of their illness can be attributed to seven factors. The six categories were almost identical to Angermeyer and Matschinger's categories but an additional category emerged, the "financial pressures" category. This category seems to be peculiar to Singapore as beliefs in this category have hardly been mentioned in other studies. Even Phillip et al's (2000) Chinese sample and Chung et al's (1997) Hong Kong Chinese sample made hardly any mention of them. This suggests that beliefs in financial pressures may be a Singaporean rather than a Chinese phenomenon.

Patients' responses to the Beliefs Questionnaire showed that they have attributed their illness mainly to supernatural causes. This indicates that there is a discrepancy in beliefs between the lay and patient populations. It is possible

that patients prefer to attribute blame to more intangible external causes as such beliefs may be less threatening to themselves and to their already damaged sense of self-esteem. This could be reflective of their sense of helplessness, hopelessness and resignation to a fate that is beyond their control but this is only speculative. However, it may be possible that patients may genuinely believe in supernatural causes, given the religious and cultural milieu they are in.

Most of the predictions on demographic factors and causal beliefs have been supported except for the prediction that female Malay patients will endorse more supernatural beliefs than male patients, and the prediction of differences between higher and lower educated patients in their beliefs about biological and supernatural causes. Treatment methods did fall into the three categories as predicted except for a re-allocation of one of the items. Surprisingly, patients have endorsed significantly more professional mental health care methods (which were basically beliefs in antipsychotic medication) over and above the other two methods despite their low endorsement of biological causal beliefs. This could be a reflection of their long exposure to the psychiatric services or to their respect for the "authority figures" of the medical services. There was, however, a positive albeit low correlation between patients' causal and treatment beliefs.

Caregivers of patients, through the years and stress of caring for these patients, have attributed blame primarily to the inherent weakness of the patients' character. This was contrary to the prediction that, like the lay population, they will attribute most blame to psychosocial factors. The attribution to intrapsychic

causes, as discussed earlier, has implications of high EE within the family and can cause serious repercussions. This awareness should be addressed in family psychoeducation and therapy. There was no significant demographic difference in the caregivers' endorsement of causal and treatment beliefs contrary to expectations. The fact that caregivers believed in professional methods of treatment indicates that they are aware of the importance and effectiveness of medication in the treatment of the patients.

Patients' and caregivers' causal beliefs did not correlate except for the supernatural and biological categories. Significant discrepancies, however, were found between patients and caregivers in their endorsement of the intrapsychic and psychosocial categories of beliefs. This further suggests that patients and their caregivers do not seem to agree on certain basic matters and emphasizes the need for these issues to be addressed.

In summary, results from the responses of the patients and caregivers to the Beliefs Questionnaire have shown that there are differences in their beliefs which may be attributable to their culture, religion and current situations. Demographic factors per se do not impact significantly on beliefs, except for the Malay patients and supernatural beliefs. This suggests that beliefs may differ perhaps in demographic subgroups.

Results of the outcome study

At the outcome six months later, there was an attrition rate of 4.1%. This "loss" of patients in the follow-up were mainly because of the patients defaulted

treatment and were no longer contactable owing to various reasons. The majority (65.1%) of the remaining patients still did not believe they have a mental illness and 79.9% were living with their families or friends.

There was no significant effect in outcome between controls and patients who were included in the Patient Education Programme. As discussed earlier this could be due to the contents of the programme or the style of delivery. This suggests that the programme should be relooked at and perhaps revamped. The duration of time may have been too short for accurate assessment of this intervention. Although 6 months may not have been long enough, other psychoeducation programmes as those used by Kemp et al (1998) and MacPherson et al (1996) have shown positive gains after 3 and 6 months.

Ethnicity did not have a significant effect on illness severity. There was, however, a significant ethnic difference in social functioning and in community tenure but not in rehospitalization; Chinese patients fared better socially and occupationally than Malay patients. As discussed previously, this is likely due to the Chinese's need to "save face" and "push" oneself. Malay patients had shorter duration of community tenure owing to various reasons as discussed, including erosion of traditional Malay tolerance and the shift into high-rise accommodation with limited living space.

The effect of causal beliefs on outcome was supported only insofar as biological beliefs were concerned. When patients believed in biological causes of their illness, they had better social functioning at outcome. When patients believed more in professional mental health care and psychosocial treatment

methods their social functioning was also significantly better, but not when they believed more in supernatural treatment methods.

Beliefs in biological causes and professional mental health care treatment resulted in significantly better insight, which in turn was significantly correlated to increased social functioning. Thus when patients believed in biological causes, they had better insight and their social functioning improved. A positive attitude towards medication led to better social functioning but it also, surprisingly led to more rehospitalizations. It is speculated that when patients had this positive attitude, they also had great confidence in the biomedical treatment including hospitalization, and therefore would get themselves admitted as soon as they felt unwell.

The more side-effects (as indicated on the LUNSERS) the patients had, the more symptoms they reported (higher BPRS scores). It is likely that when patients experienced a lot of side-effects, they would stop taking their medication resulting in more symptoms. Compliance with medication, however, did not have a significant effect on outcome. This has been discussed at great length in Chapter 5.

The results of this study have shown that compliance is positively correlated with level of insight, and negatively correlated with side-effects to medication. With this in mind, efforts should be made to provide effective forms of psychological interventions and therapy to enhance insight. The definition of insight, however, should be objectively re-examined from a different perspective, as proposed by McCabe & Quayle (2002). They have advocated that "people

should have a chance to construct their own interpretations of a psychotic experience". They further argued against the "lack of insight" according to the clinician's own judgement to be regarded as a symptom of schizophrenia. Such a proposal seems reasonable enough and is consistent with the trend of thought in the present study that patients' own explanatory models and their beliefs about the causes of their symptoms should be addressed.

When patients experience less side-effects, they have less psychotic symptoms as this study has found. This is because they are more likely to take their medication regularly. Atypical antipsychotics with a lower side-effect profile should ideally be made more freely available in the state institution and community psychiatric clinics. This may contribute to a better compliance with medication.

Although compliance in this study did not have a direct impact on the severity of illness at outcome, the results of this study have shown that when patients are compliant early in their illness, the compliance is maintained even much later on. This is consistent with Buchanan's (1996) conclusion that "nothing predicts future behaviour so well as previous behaviour". Hence the establishing of compliance early in the illness may provide for a better course and outcome.

Caregivers' beliefs did not significantly impact on the patients' outcome except when they believed in biological causes, patients had more rehospitalizations, contrary to expectations. When they endorsed more professional mental health treatment, the patients' social functioning was lower.

These contradictions could once again be due to their confidence in the biomedical treatment of the illness or they could be due to high EE in terms of over-involvement and over-protection. The implications of these results are that caregivers may need family therapy to support them in their caregiving duties. An understanding of the early development of family relationships, as advocated by Birchwood (1999) would be helpful.

In summary, it would seem that illness severity at outcome was significantly affected only by side-effects as measured on the LUNSERS. In other words, when patients experience a lot of side-effects, they are likely to stop taking the medication and this would result in more symptoms and greater illness severity. Social functioning as indicated by the GAF, was affected by most of the factors including ethnicity, causal and treatment beliefs, insight and attitude towards medication. It appears that illness severity can be improved by reducing side-effects but it is unlikely that the equation can be so simplistic.

Practical implications of the results

The results of these three studies all indicate that there is a need to educate the Singaporean lay population, the patients and caregivers about the causes of schizophrenia. This can be done through public forums and psychoeducational packages differently tailored for the different groups in the population. Certain specific groups may require more intensive psychoeducation but this must be delivered with sensitivity to the cultural beliefs.

Beliefs in supernatural causes of schizophrenia as perceived by the lay population and the patients are generally similar, but there seems to be a distinct qualitative difference in the intensity of these beliefs. The lay people tended to be more detached, impersonal and less intense when describing such beliefs whereas the patients seemed very intense, personal and emotional when talking about their beliefs on how these causes have affected their lives. Two excerpts taken from small group discussions with the Chinese and Malay lay samples, and two from interviews with a Chinese and a Malay patient are found in Appendix 6.1 and Appendix 6.2. These excerpts illustrate the differences in the intensity of the beliefs of the lay people and the patients themselves.

Besides providing information, public forums can also be the platform to destigmatise and demystify schizophrenia. Schizophrenia affects individuals across all walks of life. Although the lay population at large may be aware of the consequences of mental illness, many Singaporeans would be reluctant to seek help from psychiatric services for various reasons. By attributing blame to psychosocial factors, the logical belief would be that nothing much can be done to change the society in which they live except perhaps to cope as best with the stresses of life. This was one of the arguments put forward by some of the participants in the lay beliefs study. Consistent with the cultural background, the Chinese are likely to deny the possibility of mental illness in themselves or their family members because of the shame and "loss of face"; they are more likely to place blame on the individual's weakness of character. As it is believed that such characterologic weakness cannot be helped by medication or psychiatrists,

they are unlikely to seek psychiatric treatment. They may, however, turn to temple mediums to intervene and seek blessings from the gods on behalf of the weak person to strengthen his character. Another alternative would be to seek help from Traditional Chinese Medicine physicians for herbal potions to balance the "ying" and the "yang" and to strengthen the "chi" (inner strength) of the individual.

The Malays, because of their religious teachings and beliefs would tend to leave the fate of such an affliction to the "will of Allah" and not seek psychiatric treatment. Alternatively, because of their cultural beliefs, the Malays would prefer to seek treatment from traditional healers to remove or negate evil spirits or "spells" that have been cast into them by malefactors. These public forums could provide a clearer picture of the causes and treatment of schizophrenia, to reduce the stigma attached to the illness and to educate the lay population on the various forms of treatment available to alleviate the condition.

Besides the immediate aims of this thesis, the larger picture of such an exercise is to better understand the beliefs and needs of the patient population diagnosed with schizophrenia in Singapore. This would contribute towards providing a more holistic, comprehensive and culturally-sensitive service to these patients.

What has been learned

On the whole, the process of extensive literature search in preparing for this thesis has been very beneficial in gaining an in-depth knowledge about the

schizophrenic illness and all the concomitant facts and cultural issues surrounding the illness. A wide background knowledge about the origins of the two main ethnic groups, the origins of their cultural and religious beliefs and their current beliefs has given a more meaningful insight and understanding of fellow Singaporeans. Although Singaporeans live in close proximity to each other, perform much of their daily activities together, respect each others' beliefs and practices and generally live together in harmony, each ethnic group may be quite ignorant of the underlying nuances of culture that impact on their daily lives. This exercise in reading and finding out more about their cultural background and even one's own roots has been a refreshing and enlightening experience.

The first study of this thesis looked at the prevailing beliefs of a cross-sectional sample of the normal lay population. Recruiting lay people for this study proved to be not an easy task. The task was especially difficult with the Chinese sample. Contacts for potential Chinese subjects and staff in charge of Chinese community centers were often reluctant to help when approached, giving all sorts of excuses which ranged from the head of the organization being unhappy about such a request, to the prediction that potential subjects would not be willing to participate. Experience with the Malays was a lot more pleasant; although they did not go out of their way to offer to contact other affiliated organizations, they did what they could within their own organizations. The Indians, however, were very enthusiastic and willing to be involved and even offered to arrange for subjects to be recruited from other organizations within the whole Indian community in Singapore. Unfortunately, it was decided that the

Indian ethnic group would not be included in this study because of time and manpower constraints. This overall attitude of these people approached for help with this study is actually quite reflective of the attitude and behaviours of the three main ethnic groups in Singapore. This is consistent with the historical background of each ethnic group and evidence can be seen in each ethnic group's general behaviour and their participation in voluntary, charitable and social activities and organizations in Singapore.

As the recruitment of these subjects were coordinated by the contact persons from each ethnic group the refusal rate was not captured.

The time frame for monitoring admissions at the Admissions and Emergency Department of the Hospital, recruiting patients in the wards, ensuring that they are not discharged by the clinician or given psychoeducation before being interviewed for the study, interviewing and obtaining baseline data while they are stable and awaiting discharge was a rather narrow one to work in. Perhaps for future research to obtain a cross-sectional database of patients' beliefs, it may be more feasible to recruit outpatients who attend the psychiatric outpatient clinics and to follow them up 2 years later in these clinics again. The computerised system of monitoring these patients will facilitate follow-up even several years later. This longer follow-up period would certainly enhance the accuracy of observations and conclusions.

Sometimes interviews with patients in the wards took much longer than intended when patients needed to tell the whole story of their lives leading to their current admission to hospital. The interviews seemed to be cathartic to

many of them as they ventilated about their disappointments in life, their lost opportunities, their shattered dreams and their anger with their present family or the unhappy "hungry ghosts" of their ancestors for inflicting this curse upon them. They often expressed appreciation at the end of the interviews for being given the opportunity to talk about their problems, but care had to be taken not to turn these interviews into psychotherapy or psychoeducational sessions which would otherwise confound the findings of the research study.

Not all patients recruited for the study, however, were happy at being interviewed despite giving their consent in the first instance. This occurred particularly when they did not perceive themselves as suffering from any mental illness. Though deemed mentally stable by the clinicians, some of them became very paranoid and suspicious as the interview proceeded although they did not insist on opting out. A case to illustrate this situation is that of a highly religious Malay female who got very offended and hostile after a few questions were asked about her perception about being brought into the hospital. She was adamant that she had no mental illness whatsoever and that it was her husband who had her admitted so that he could have the freedom to womanise while she was hospitalized. The husband who was visiting in the ward confirmed that the patient had always been suspicious of him despite his reassurances of his fidelity. Such cases were, however, few and far between.

Most of the patients who were contacted 6 months after the interview were cooperative in attending the follow-up interview although there were some who were reluctant despite the monetary incentive and had to be cajoled and

persuaded. Some patients expressed their appreciation that mental health professionals are actually interested in their well-being and are concerned about their feelings besides just prescribing them their medication. This is an indication that patients are keen for a more holistic approach to their treatment and if culturally-sensitive psychotherapy is offered as part and parcel of the psychiatric treatment offered to them, this would contribute to a better outcome and quality of life for the patients.

Caregivers interviewed in this study have also intimated that some form of emotional and financial support would make life easier for them. At the end of the study, some of the patients and caregivers who do not already have any of the hospital's medical social workers assigned to them to provide this support were referred accordingly. It is the usual practice for patients to be allocated to one of the hospital's team of medical social workers but not all provide family therapy and psychoeducation, only the assistance to obtain financial aid.

Limitations of the findings

The findings of these studies have provided an overview of the lay and patient population's beliefs about schizophrenia. These findings have useful clinical implications. There are, however, some limitations to the studies which need to be addressed.

The sample size of the lay beliefs study was small and the sample may not be representative of the lay population. This precludes generalizability of the results to the total population of Singapore. The number of participants in each

discussion was also small. Multiple groups of each small group would have provided a better representation.

Besides this, the responses of the participants could have been coloured by the fact that the discussion was led by a mental health professional whom they are aware is from the state mental hospital. This knowledge could have made them apprehensive of expressing their thoughts and beliefs freely in the presence of a professional, perhaps for fear of sounding ignorant, appearing ridiculously superstitious or even odd and idiosyncratic. Participants may also have been reluctant to go against "authority figures" (mental health professionals as interviewers). Therefore, they could have verbalised what they perceived to be the "desired" response. Moreover, the topic itself could be considered "taboo" and hence inhibit them from talking openly about their real beliefs, not because of the investigators this time, but because of their own superstitious beliefs that they might offend the spirits and be punished for it. The beliefs elicited, however, have provided the material for a culturally-relevant beliefs questionnaire to be built upon.

The Patients' Beliefs Questionnaire was first administered to a cohort of patients who had been suffering from schizophrenia for durations ranging from 2 to 40 years. Because of the nature of the illness, some patients may be cognitively impaired and others may have acquired cognitive deficits through the course of the illness. Hence, another limitation of the findings derived from the responses of these patients to the Questionnaire is that they may be tainted by the patients' poor comprehension or concrete interpretation of the questions,

random responses or difficulty with accessing their actual feelings to respond accurately to the questions. For example, there was a 32-year old female Malay patient whose onset started at the age of 20 while she was in her second year at the National University of Singapore reading economics. Twelve years after the onset of her schizophrenic illness this ex-University student had difficulties with concentration and comprehension when administered the Questionnaire. Some of the patients, though deemed mentally stable by the clinician, may still be affected by residual symptoms which could affect their concentration or influence their responses and judgement.

Outcome of the patients was measured six months after the initial interview at the index admission. This period may be too short to provide for a proper assessment of outcome considering that many of the patients have been ill for many years. A follow-up of at least two years or longer would be a more telling and accurate assessment of outcome.

The measurement of compliance in this study using mainly patients' and caregivers' reports and casenotes may not have been sufficiently accurate or robust.

In the real world, outcomes are affected by the additive and interactive effects of various factors. This study has looked only at main effects. Although it would be difficult and complicated to examine all interactions, some of which would probably be significant by chance, interaction effects could provide more powerful predictors of outcome.

Clinical applications and future directions for research

The Patients' Beliefs Questionnaire could be incorporated into psychotherapy sessions with the patients to gain a better understanding of their belief systems on which more meaningful therapy can be conducted. The experience of having explored patients' beliefs seems to have been a positive one for the investigator as well as the patient. In a therapy session, the therapeutic relationship would likely be enhanced if the therapist were to take a culturally more sensitive approach. Patients have remarked time and again during the interviews in this study that they have never been asked what they thought caused their illness and which method of treatment they considered would help them most. Validation of patients' feelings and beliefs can contribute towards a more positive and collaborative working relationship in which the patients are empowered to take an active part in their treatment.

Caregivers would benefit from family psychoeducation and therapy sessions. Analysis of their responses have shown that they feel that the weakness of character of the patients is the main cause of the schizophrenic illness; this could lead to friction and eventual rejection of the patients. Some form of support would help neutralise their negative feelings towards the patients but the support should be sensitively delivered rather than given as a "blanket" programme for all caregivers, regardless of ethnicity or educational background. This can be better achieved when there is some awareness of the each caregiver's belief system about the causes of the illness. The Caregivers' Beliefs Questionnaire can be meaningfully utilized for this purpose.

Despite the several limitations, the three studies and the results have provided leads and ideas for further research.

The lay beliefs study could be replicated using a larger and more representative sample of the Singaporean population, including the Indian ethnic group. Replication across multiple groups of each small group would ensure better consistency among the responses.

The present Beliefs Questionnaire can be considered a draft. Its use in this study is exploratory and can be followed by a confirmatory study with a larger and different sample. This would provide for a more robust and valid questionnaire which can useful as a tool to assess lay people's, patients' and caregivers' beliefs routinely in a clinical setting as or when necessary, or on a large scale for research purposes.

Another study examining the explanatory models of patients, using a different approach like, for example, Lloyd et al's (1998) Short Explanatory Model Interview (SEMI) would be interesting and would provide for some comparison with the use of a beliefs questionnaire.

It would be interesting to examine the effects of a different sort of psychoeducation programme on the outcome of Singaporean patients. The programme used in the present study by the nurse educators was mainly didactic. Perhaps a more effective programme would be one that is interactive and allows for expression of the patients' explanatory models for their illness and their reasons for refusing medication. An awareness of the different patients' cultural and religious beliefs would be useful. Such issues should be dealt with

sensitively. This could be on top of the usual presentation of the facts of the illness and the types of treatment that are available. An example of a programme which has been shown to enhance patients' compliance with medication and to improve functioning and community tenure is Kemp et al's (1996) compliance therapy. The application of Miller & Rollnick's (1991) motivational interviewing techniques has been proven to be effective (Kemp et al, 1996). Using a questionnaire, for example, MacPherson's (1996) Understanding of Medication Questionnaire, could also be beneficial to assess and establish patients' baseline knowledge so that misconceptions can be addressed.

Measurements of compliance could be more robust in future research of this nature by assessing blood levels of antipsychotics in addition to self-reports and casenotes.

This study has investigated the beliefs of chronic patients who have been suffering from schizophrenia for durations ranging from 2 to 40 years. It is likely that their beliefs about the causes of their illness are quite firmly entrenched. The implications of exploring the beliefs of patients with early onset seems to be more optimistic. The experience of psychosis would still be novel to them and they may still be searching for an explanatory model. Their beliefs are likely to be different from those of the chronic group. A study investigating the beliefs of this early onset group would not only be interesting but would have important clinical implications. An understanding of their beliefs and explanatory models would aid in providing culturally-sensitive, relevant and meaningful therapy for these patients. With the growing movement towards intervention in early psychosis,

such a therapeutic approach to the psychological treatment of patients with early psychosis would be invaluable.

Much can be done in future research in this area to provide a more holistic and culturally-sensitive approach to the management of patients with schizophrenia in Singapore and to provide their caregivers with optimal and appropriate support.

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APPENDIX 1

Outline for Cultural Formulation and Glossary of

Culture-Bound Syndromes

(DSM IV)

APPENDIX 3.1

Beliefs group discussion schedule

APPENDIX 3.1

Beliefs Group Discussion Schedule

Instructions for Group Facilitators:

1. Introduce yourself by name; refrain from telling them your profession unless specifically asked.

2. Explain that we are conducting some survey into the beliefs of lay people in the community for research and interest purposes.

3. Inform group members that this is a discussion for us to know more about what different people believe causes some people to behave in strange and unusual ways.

4. Narrate the vignette to them.

5. Then ask them what words or terms they would use to describe someone who behaves like the person in the vignette. Use the word(s)* supplied by the group throughout the discussion whenever possible.

6. Encourage group members to freely express their own opinions and beliefs, assuring them that their identities will be kept anonymous.

7. Prompt when necessary to facilitate the discussion; intervene discreetly when only one person is speaking all the time and encourage other group members for their opinion or if they agree with what has been said.

8. Prompt when necessary to elicit response to certain items they may have left out from the semi-structured discussion schedule under 'Prompts'.

Some examples of useful questions to elicit terminology and causes:

I Terminology

1. What words would you use to describe the person I have just told you about?

   (Try and elicit as many words or terms as possible from the group members)
   Each time they produce some terms, explore further what they mean by the terms and select the one that best fits a schizophrenic illness.

2. Would you say that that is an illness?
   If not, then what is it?

II Causes

1. What do you think are some of the possible causes of that person becoming *mad?

When necessary, probe further using the following prompts:
(The male gender is used to refer to both sexes.)

III Prompts – some examples

Biology Factors:

1. Is *madness passed down in the family?
2. Is it due to something that happened when he was young, like an illness or a fall?
3. Did it happen when he was still in his mother's womb?
4. Can drinking too much alcohol make him *go out of his mind?
5. Is *madness due to some brain damage or the brain not working properly?

Supernatural Powers:

1. Was it caused by some evil spirit, spirit possession or something supernatural?
2. Is it because he "touched something dirty or unclean"?
3. Can a jealous person use some form of magic potion to make another person go *crazy?
4. Can too much religion cause someone to go *mad?
5. Is it possible that he became *mad because he did not practise his religion?

Psychosocial Stress:

1. Can the pressures of life or too much stress cause him to go *crazy?
   Probe: What do you mean by stress and pressure?
2. Can living under cramped and over-crowded accommodation cause *madness?
3. Does poverty make a person go *mad?
4. Is it because he has no friends or family?
5. Is it due to relationship problems?

Intrapsychic Factors:

1. Can being over-ambitious make him go *insane?
2. Can keeping too much to himself cause him to go *mad?
3. Can thinking too much, being anxious and worried all the time cause *insanity?
4. If a person always has bad feelings of anger or jealousy, can he go *crazy?
5. Is it because he is unable to cope with difficult situations?

Socialization:

1. Is it due to the way he has been brought up by his family?
2. Does mixing too much with certain types of people cause *madness?
3. Is it because his parents were cold and unaffectionate?
4. Was his insanity caused by the broken home from which he came?
5. Is it because his parents were over-protective towards him?

State of Society:

1. Can modernization of society cause a person in that society to go *crazy?
2. It is because society has become cold and uncaring that he became *insane?
3. Does the decay of traditional values of the society drive people to *madness?
4. Do people become *insane because of exploitation by society?
5. Have more people become *mad due to the prevailing social situation?

* Words or phrases supplied by group members

APPENDIX 3.2

Vignette

APPENDIX 3.2

Vignette

A 32-year old man, unemployed for the last 8 years is often seen walking around the town centre aimlessly at different times of the day. He looks unkempt and dishevelled as though he does not care about his personal hygiene and appearance. Very often he has been noticed to be talking to himself, laughing and gesturing to himself. Occasionally, he would turn aggressive towards innocent by-passers, accusing them of talking about him and making rude remarks about him.

His family reported that he had done very well academically in primary and secondary school and was coping well in his job until 8 years ago. Since his last job, he has been staying at home, keeping to himself and not keen on going out with his friends. He had complained to his family members that he often heard voices talking about him even when he was alone. He also felt that people were trying to harm him and that his thoughts were controlled by some alien forces. When he talked to his family members, they felt he would 'jump' from one topic to another and they had difficulty making sense of what he was saying.

What do you, in your personal opinion, think is wrong with him and what do you believe are the causes of such behaviours?

APPENDIX 3.3

Guidelines for extracting and categorising causal beliefs

APPENDIX 3.3

Guidelines for Extracting and Categorising Causal Beliefs

Definition of Causal Belief:

A statement is defined as a causal belief when it is specifically believed to produce the effect, or believed to give rise to the condition eg 'I believe that being isolated can make a person go mad'.

A statement must be taken in the context of the discussion when deciding whether or not it should qualify as a causal belief.

Statement that **qualifies** as belief:

A belief that says something exacerbates a situation until the person becomes insane is included as a causal belief.

A statement that says the something 'possibly' or 'maybe' caused the insanity is included as a causal belief.

When others agree to a causal belief brought up by one member, each agreement is counted as a belief.

When the same belief is spontaneously brought up again later in a different context during the discussion by the same person or by another group member, it is counted as a belief.

Statement that **does not qualify** as a belief:

A description of the person's state of mind or condition, or a statement that describes the situation does not qualify to be a causal belief eg 'Her eyes are always staring as though she is crazy'.

When a statement says that something predisposes a person to insanity, it is not considered a belief.

When the same person brings it up again in the same context and in the same period of time, it is not counted as a belief.

APPENDIX 3.4

Categories of beliefs

APPENDIX 3.4

CATEGORIES OF BELIEFS
(following Angermeyer & Matschinger, 1994)

Definitions of Categories

I Biological Factors
A statement naming any of the following as causes:
- brain disease
- brain damage or injury due to falls
- something that happened when the mother was pregnant with that person
- heredity & genes or genetics
- physical or constitutional weakness
- brain impairment due to drug or alcohol abuse

II Supernatural Powers
A statement naming any of the following as causes:
- will of God
- witchcraft, black magic, charms
- possession by evil sprits
- signs of zodiac
- bad luck
- fate
- religious reasons, no religion or too much religion
- punishment by gods

III Intrapsychic Factors
A statement naming any of the following as causes:
- lack of willpower
- expecting too much of oneself
- being too ambitious
- unconscious conflicts
- thinking too much
- unstable personality
- due to his personality
- weak in his mind, nature, personality

IV Psychosocial Factors
A statement naming any of the following as causes:
- difficulties in relationship with partner, family, friends or colleagues
- pressure and stress caused by work, studies, unemployment
- stressful life events
- traumatic experiences
- lack of social or family support
- social isolation
- financial difficulties, poor housing conditions

V Socialization
A statement naming any of the following as causes:
- growing up in a broken home

- growing up in a bad environment
- lack of parental affection
- overprotective parents
- faulty upbringing

VI <u>State of Society</u>

A statement naming any of the following as causes:

- loss of traditional values
- decay of natural ways of life
- exploitation by society
- indifference of society
- hectic pace of modern life
- too rapid modernization
- society itself, its characteristics, pressures of society

APPENDIX 4.1.1

Consent Form – Patient

APPENDIX 4.1.1

CONSENT FORM - PATIENT

I agree to participate in a study conducted by Mrs Lyn Chua that asks about my beliefs about the causes of my illness.

I understand that I will be interviewed about my illness and be required to complete a questionnaire on my beliefs.

I will be treated by my regular doctors. This study will not affect the treatment I am receiving and there will be no restrictions on any additional treatments (drugs or otherwise) that I may need.

I understand the purpose of my participation and am aware that there may not be any direct benefit to me from participating in the study, but that it may further the scientific understanding of my condition and its treatment.

Any information obtained from me during this study will be confidential and neither my name nor any identifying particulars will be available to anyone other than the researchers. Neither my name nor any identifying particulars will be included in any reports or publications.

I can withdraw from the study anytime I wish and if I do so, it will have no effect on my current or future treatment.

The study has been explained to my by: _____

_____
Patient's name and signature

Daté: _____

_____
Witness' name and signature

APPENDIX 4.1.2

Consent Form – Patient

(Chinese version)

APPENDIX 4.1.2

CONSENT FORM – PATIENT 病人同意书

I agree to participate in a study conducted by Mrs Lyn Chua that asks about my beliefs about the causes of my illness.
本人同意参与一项由 Mrs Lyn Chua 所领导之有关我患疾病之起因的研究。

I understand that I will be interviewed about my illness and be required to complete a questionnaire on my beliefs.
我明白我将被询及我的疾病并就我所知完成一项问卷调查。

I will treated by my regular doctors. This study will not affect the treatment I am receiving and there will be no restrictions on any additional treatments (drugs or otherwise) that I may need.
这项研究将不会影响我现有或将来所需接受的药物或其他治疗。我将继续由现有之医生诊治。

I understand the purpose of my participation and am aware that there may not be any direct benefit to me from participating in the study, but that it may further the scientific understanding of my condition and its treatment.
我明白参与是项研究对我的疾病也许并无直接上的帮助。但也许可以就科学的角度上对我的病况及所进行的治疗做深一层的探讨。

Any information obtained from me during this study will be confidential and neither my name nor any identifying particulars will be available to anyone other than the researchers. Neither my name nor any identifying particulars will be included in any reports or publications.
我於研究时所提供之任何资料都属机密的。除了参与是项研究之研究员以外，不得向其他任何人透露我的姓名及有关资料，也不许刊登於任何报导或刊物上。

I can withdraw from the study anytime I wish and if I do so, it will have no effect on my current or future treatment.
我可以随时退出这项研究并且不影响我目前或将来所需接受的治疗。

This study has been explained to me by : _____

是项研究曾由 _____ 向我解释说明。

Date: _____
日期

_____
Patient' s name and signature
病人姓名与签章

_____
Witness' name and signature
见证人姓名与签章

APPENDIX 4.1.3

Consent Form – Patient

(Malay version)

APPENDIX 4.1.3

BORANG KEBENARAN - PESAKIT

Saya bersetuju untuk mengikuti penyelidikan yang dibuat oleh Puan Lyn Chua mengenai punca penyakit saya.

Saya tahu yang saya akan ditemuduga dan juga dikehendaki untuk menjawab soal selidik mengenai penyakit saya mengikut pengetahuan saya.

Saya akan terus menerima rawatan dari doktor yang merawat. Penyelidikan ini tidak akan menjejaskan perawatan yang diterima oleh saya dan tidak terdapat sebarang halangan bagi rawatan tambahan (ubat-ubatan dan sebagainya) yang diperlukan.

Saya memahami tujuan penyelidikan ini dan sedar bahawa penyelidikkan ini mungkin tidak memanfaatkan diri saya buat masa ini tetapi ianya mungkin dapat membantu pengetahuan sains untuk mendalami tentang penyakit yang saya alami dan perawatannya di masa hadapan.

Semua maklumat yang diperolehi dari saya dalam masa penyelidikan ini adalah sulit, nama atau sebarang pengenalan diri tidak akan didedahkan kepada sesiapa selain dari penyelidik. Nama dan pengenalan diri juga tidak akan didedahkan dalam sebarang laporan dan bahan cetak.

Saya boleh menarik diri dari penyelidikan ini pada bila-bila masa dan perbuatan saya ini tidak akan melibatkan perawatan saya pada masa ini atau di masa hadapan.

Penyelidikan ini telah diterangkan kepada saya oleh: _____

_____
Nama dan tandatangan pesakit

Tarikh:

_____ _____
Nama dan tandatangan saksi

APPENDIX 4.2.1

Consent Form – Relative

CONSENT FORM - RELATIVE

I agree to participate in a study conducted by Mrs Lyn Chua that asks about my beliefs about the causes of my relative's illness.

I understand that I will be interviewed about his/her illness and be required to complete a questionnaire on my beliefs.

My relative will be treated by his/her regular doctor. This study will not affect the treatment he/she is receiving and there will be no restrictions on any additional treatments (drugs or otherwise) that he/she may need.

I understand the purpose of my participation and am aware that there may not be any direct benefit to my relative from participating in the study, but that it may further the scientific understanding of his/her condition and its treatment.

Any information obtained from me during this study will be confidential and neither my name nor any identifying particulars will be available to anyone other than the researchers. Neither my name nor any identifying particulars will be included in any reports or publications.

I can withdraw from the study anytime I wish and if I do so, it will have no effect on my relative's current or future treatment.

The study has been explained to my by: _____

_____
Relative's name and signature

Date: _____

_____
Witness' name and signature

APPENDIX 4.2.2

Consent Form – Relative

(Chinese version)

CONSENT FORM – RELATIVE 亲属同意书

I agree to participate in a study conducted by Mrs Lyn Chua that asks about my beliefs about the causes of my relative' s illness.
本人同意参与一项由 Mrs Lyn Chua 所领导之有关我亲属疾病起因之研究。

I understand that I will be interviewed about his/ her illness and be required to complete a questionnaire on my beliefs.
我明白我将被询及他 / 她 的疾病并就我所知完成一项问卷调查。

My relative will treated by his/her regular doctor. This study will not affect the treatment he/she is receiving and there will be no restrictions on any additional treatments (drugs or otherwise) that he/she may need.
这项研究将不会影响或限制他 / 她 目前或将来所需接受的药物或其他治疗。他 / 她 将继续由现有之医生诊治。

I understand the purpose of my participation and am aware that there may not be any direct benefit to my relative from participating in the study, but that it may further the scientific understanding of his/her condition and its treatment.
我了解这项研究对我亲属的疾病也许并无直接的帮助。但也许可以就科学的角度上对他/她 的病况及所进行的治疗做深一层的探讨。

Any information obtained from me during this study will be confidential and neither my name nor any identifying particulars will be available to anyone other than the researchers. Neither my name nor any identifying particulars will be included in any reports or publications.
我於研究时所提供之任何资料都属机密的。除了 参与该项研究之研究员以外，不得向其他任何人透露 我的姓名及有关资料，也不许刊登於任何报导或刊物上。

I can withdraw from the study anytime I wish and if I do so, it will have no effect on my relative' s current or future treatment.
我可以随时退出这项研究并且不影响我亲属目前或将来所需接受的治疗。

This study has been explained to me by : _____

是项研究曾由 _____ 向我解释说明。

Date: _____
日期

_____
Relative' s name and signature
亲属姓名与签章

_____
Witness' name and signature
见证人姓名与签章

APPENDIX 4.2.3

Consent Form – Relative

(Malay version)

APPENDIX 4.2.3

BORANG KEBENARAN - AHLI KELUARGA

Saya bersetuju untuk mengikuti penyelidikan yang dibuat oleh Puan Lyn Chua mengenai punca penyakit ahli keluarga saya.

Saya tahu yang saya akan ditemuduga dan juga dikehendaki untuk menjawap soal selidik mengenai penyakit pesakit mengikut pengetahuan saya.

Pesakit akan terus menerima rawatan dari doktor yang merawat. Penyelidikan ini tidak akan menjejaskan perawatan yang diterima oleh pesakit dan tidak terdapat sebarang halangan bagi rawatan tambahan (ubat-ubatan dan sebagainya) yang diperlukan pesakit.

Saya memahami tujuan penyelidikan ini dan sedar bahawa penyelidikkan ini mungkin tidak memanfaatkan pesakit buat masa ini tetapi ianya mungkin dapat membantu pengetahuan sains untuk mendalami tentang penyakit pesakit dan perawatannya di masa hadapan.

Semua maklumat yang diperolehi dari saya dalam masa penyelidikan ini adalah sulit, nama atau sebarang pengenalan diri tidak akan didedahkan kepada sesiapa selain dari penyelidik. Nama dan pengenalan diri juga tidak akan didedahkan dalam sebarang laporan dan bahan cetak.

Saya boleh menarik diri dari penyelidikan ini pada bila-bila masa dan perbuatan saya ini tidak akan melibatkan perawatan pesakit pada masa ini atau di masa hadapan.

Penyelidikan ini telah diterangkan kepada saya oleh: _____

_____
Nama dan tandatangan keluarga

Tarikh:

_____ _____
Nama dan tandatangan saksi

APPENDIX 4.3.1

Patients' Beliefs Questionnaire

PATIENT'S BELIEFS

Thank you for your cooperation in answering this questionnaire. Your help is very much appreciated and will contribute towards a better understanding of your beliefs and hopefully improve the treatment of your problems.

This questionnaire has three parts. The first part asks about what you believe are the causes of your need for treatment at Woodbridge Hospital; the second part asks about what you believe are the methods of treatment that can help your problems and the third part consists of six questions to which you need only to respond with a 'yes' or 'no'.

Part One
Patient's Beliefs about Causes of Need for Treatment at Woodbridge Hospital

People have different beliefs about the causes of their problems. The following statements are some common beliefs about the causes of need for treatment at Woodbridge Hospital.

Please indicate the extent to which you agree or disagree with each causal belief presented below by using the following scale. Circle one number for each belief. There are no right or wrong answers; only your own beliefs count here.

Disagree Strongly	Disagree Mildly	Agree Mildly	Agree Strongly
1	2	3	4

I believe that my need for treatment at Woodbridge Hospital is caused by:

1. Thinking too much.	1	2	3	4
2. Society becoming too modern and competitive.	1	2	3	4
3. The financial status of my family background.	1	2	3	4
4. Events in my life eg divorce in my family, failing exams, loss of my job or no job, death of a loved one, etc.	1	2	3	4
5. Our society's high cost of living.	1	2	3	4
6. My parents being either too strict or too lenient when I was young.	1	2	3	4
7. Influence of watching television.	1	2	3	4
8. Financial problems.	1	2	3	4
9. Something that I have eaten that affected my brain eg certain foods, drugs, alcohol, etc.	1	2	3	4
10. Being isolated and neglected by society.	1	2	3	4

Disagree Strongly	Disagree Mildly	Agree Mildly	Agree Strongly
1	2	3	4

11. My mind is very weak.	1	2	3	4
12. Black magic, supernatural 'charm' or 'kong tau'.	1	2	3	4
13. My accommodation–too crowded or too lonely.	1	2	3	4
14. Relationship problems with family or friends.	1	2	3	4
15. Having strong feelings eg anger, jealousy, fears, sadness, or frustrations.	1	2	3	4
16. My inability to cope with life.	1	2	3	4
17. Problems with my character.	1	2	3	4
18. Some illness or physical injury that affected my brain when I was younger.	1	2	3	4
19. Coming from a family with lots of problems.	1	2	3	4
20. Something that happened to my mother when she was expecting me.	1	2	3	4
21. Being either too pampered or too neglected by my parents in my childhood.	1	2	3	4
22. Being possessed by evil spirits.	1	2	3	4
23. The demands and pressure of our society.	1	2	3	4
24. The way I was brought up by my parents.	1	2	3	4
25. Having no religion or the wrong religion.	1	2	3	4
26. Genes inherited from my parents, relatives or previous generation	1	2	3	4
27. Work or study stress.	1	2	3	4
28. Touching something 'dirty' or going to 'unclean' places.	1	2	3	4
29. Brain damage or something wrong with my brain.	1	2	3	4
30. Being all alone with no support from family or friends.	1	2	3	4

Part Two
Patient's Beliefs about Treatment

People have different beliefs about what helps their problems. The following statements are some common beliefs about how your problems can be helped.

Please indicate the extent to which you agree or disagree with each belief by using the following scale. Circle one number for each statement. There are no right or wrong answers; only your own beliefs count here.

Disagree Strongly	Disagree Mildly	Agree Mildly	Agree Strongly
1	2	3	4

I believe a good way of treating my problems is:

1.	Talking to my parents, a relative or friend.	1	2	3	4
2.	Praying to God and consulting a religious healer.	1	2	3	4
3.	Getting treatment from Woodbridge Hospital or clinic.	1	2	3	4
4.	Seeing a bomoh/temple medium/pastor/faith healer.	1	2	3	4
5.	Taking medicine given by a doctor.	1	2	3	4
6.	Getting professional counselling.	1	2	3	4
7.	Getting love, care and support from people.	1	2	3	4
8.	Taking traditional medicine.	1	2	3	4
9.	Teaching my family to understand and to deal with my problems better.	1	2	3	4

Part Three

Please circle 'Yes' or 'No' in response to the following 6 questions.

1.	Do you think you have a mental illness?	Yes	No
2.	Do you feel that the doctors here respect **your beliefs?**	Yes	No
3.	Did you have any problems from taking the doctor's medicine?	Yes	No
4.	Did you consult a traditional or religious healer before seeking help from the hospital?	Yes	No
5.	If so, are you still getting treatment from a traditional or religious healer now?	Yes	No
3.	Do you think traditional medicine or religious healing can help your problems?	Yes	No

Thank you for your time and participation.

Ref. No: _____

PATIENT'S BELIEFS ABOUT CAUSES & TREATMENT
Demographic Data of Patient

Date: _____ **Place:** _____

Sex: (1) Male (2) Female **Race:** (1) Chinese (2) Malay

Father's race: (1) Chinese (2) Malay (3) Others

Mother's race: (1) Chinese (2) Malay (3) Others

DOB: _____ **Age:** _____

Duration of illness: _____ **Age of onset:** _____

Religion: (1) Buddhist/Taoist (2) Muslim (3) Christian (4) Others

Highest educational level attained:

(1) No formal education
(2) Primary
(3) Secondary
(4) Vocational
(5) PreU/JC
(6) Tertiary
(7) Others

Major in:_____

Marital status: (1) Single (2) Married (3) Divorced/Separated (4) Widowed

Work Rate: Currently -
(1) working full time
(2) working part time
(3) not working

If working, present job: _____

(1) Professional
(2) Clerical
(3) Skilled
(4) Semiskilled
(5) Unskilled
(6) Housework
(7) Student

If not working, last previous job: _____

(1) Professional
(2) Clerical
(3) Skilled
(4) Semiskilled
(5) Unskilled
(6) Housework
(7) Student

Socioeconomic status:

What is the total income earned per month by **all the people** in your household?

(1) $ 499 & below
(2) $ 500 - $999
(3) $1000 - $1999
(4) $2000 - $2999
(5) $3000 - $3999
(6) $4000 - $4999
(7) $5000 - $5999
(8) $6000 & above

APPENDIX 4.3.2

Patients' Beliefs Questionnaire

(Chinese version)

APPENDIX 4.3.2

病人的信念

谢谢你们花时间回答此问卷。你们的帮忙将有助于我们更深地了解你们的信念并希望藉此更好地帮助你们。

此问卷包含三个部分。第一部分是关于你们认为为什么你们需要在板桥医院接受治疗；第二部分是关于你们认为何种方法可以解决你们的问题；第三部分则包含六个你们只要回答‘是’或‘否’的问题。

第一部分
病人对于进入板桥医院的起因

人们对于自己的问题的起因各有不同的看法。以下是一段对于问题起因的看法，请说出你们对于此看法的认同程度并于每一看法圈出一个答案。这没有对或错的答案，只在于你们自己的看法。

激烈反对	反对	赞成	非常赞成
1	2	3	4

我相信我需要接受治疗的起因是：-

1. 想太多	1	2	3	4
2. 社会转变得太‘现代化’与‘竞争’	1	2	3	4
3. 自小的家庭经济背景	1	2	3	4
4. 生活上的经历如家中有人离婚、考试不及格、失业或心爱的人死亡	1	2	3	4
5. 生活水准太高	1	2	3	4
6. 小时候父母管教太严或太松	1	2	3	4
7. 电视节目的影响	1	2	3	4
8. 财务问题	1	2	3	4
9. 我所吃的食物影响我的大脑如毒品，酒精或食物	1	2	3	4
10. 被社会孤立或抛弃	1	2	3	4

激烈反对	反对	赞成	非常赞成
1	2	3	4

11. 意志薄弱	1	2	3	4
12. 巫术或降头	1	2	3	4
13. 居住环境太拥挤或太孤单	1	2	3	4
14. 与家人及朋友之关系	1	2	3	4
15. 情绪太强烈，如生气、妒忌、害怕、伤心、懊恼	1	2	3	4
16. 无法应付生活	1	2	3	4
17. 性格上有问题	1	2	3	4
18. 小时候疾病或身体上的创伤影响了大脑	1	2	3	4
19. 来自问题家庭	1	2	3	4
20. 当我母亲怀着我时所遭遇到的问题	1	2	3	4
21. 小时候父母过度宠爱或忽略	1	2	3	4
22. 被邪魔附体	1	2	3	4
23. 社会的要求与压力	1	2	3	4
24. 成长时父母的教育方式	1	2	3	4
25. 没有宗教或被宗教误导	1	2	3	4
26. 上一代，父母或亲戚的遗传基因	1	2	3	4
27. 工作或学习上的压力	1	2	3	4
28. 碰到“肮脏”的东西或去到“肮脏”的地方	1	2	3	4
29. 大脑受损或头脑有问题	1	2	3	4
30. 孤独和没有得到家人或朋友的支持	1	2	3	4

第二部分
病人对于问题解决方法的看法/信念

人们对于解决问题的方法各有不同的看法。下列是一般对于有助于解决问题的信念，请根据你的认同程度圈出一个答案。这并没有所谓对或错的答案，只在于你们自己的看法。

激烈反对	反对	赞成	非常赞成
1	2	3	4

我相信解决我的问题的好方法是：

1. 和父母，亲戚或朋友交谈	1	2	3	4
2. 向上帝祈祷或请教宗教领袖	1	2	3	4
3. 求助于板桥精神病院，以便得治疗	1	2	3	4
4. 求助于巫师、道士或牧师	1	2	3	4
5. 服用医生配给的西药	1	2	3	4
6. 征询专业人员的辅导	1	2	3	4
7. 得到别人的爱、关怀与支持	1	2	3	4
8. 服用传统药物	1	2	3	4
9. 教育家人让他们更明白及能更好的处理我的问题	1	2	3	4

第三部分

请于以下问题圈出‘是’或‘否’的答案

1. 你是否认为自己患上了精神病?	是	否
2. 你认为你的医生有否尊重你的看法?	是	否
3. 你在服食医生给的药物后有否任何问题产生?	是	否
4. 在你入院之前你是否有求助于传统或宗教的治疗?	是	否
5. 若有，你是否还继续此治疗?	是	否
6. 你认为此治疗是否对解决你的问题有所帮助?	是	否

谢谢大家花宝贵的时间参与。

参考号码：_____

病人信念
病人的统计

日期：_____ 地点：_____

性别：(1) 男性 (2) 女性 种族：(1) 华 (2) 巫

父亲的种族：(1) 华 (2) 巫 (3) 其他

母亲的种族：(1) 华 (2) 巫 (3) 其他

出生日期：_____ 年龄：_____

疾病持续时间：_____ 起始年龄：_____

宗教：(1) 佛教 (2) 道教 (3) 天主教 (4) 基督教
(5) 回教 (6) 没有信仰 (7) 其他（请注明）：_____

最高教育程度：

(1) 小学
(2) 'N' 水准或以下
(3) 'O' 水准或相等程度
(4) 'A' 水准或相等程度
(5) 工艺文凭 / 文凭
(6) 大学程度

专攻：_____

婚姻状况：(1) 单身 (2) 已婚 (3) 离婚 / 分居 (4) 寡妇 / 鳏夫

职业：目前 - (1) 全职
(2) 兼职
(3) 无业

若有工作，现职：_____

(1) 专业人士 (4) 半技工 (7) 学生
(2) 文员 (5) 无特别技术
(3) 技术人员 (6) 家庭工

若没工作，前职：_____

(1) 专业人士 (4) 半技工 (7) 学生
(2) 文员 (5) 无特别技术
(3) 技术人员 (6) 家庭工

社会阶层：

全部家庭成员之每月总收入：

(1) $499及以下 (4) $2000 - $2999 (7) $5000 - $5999
(2) $500 - $999 (5) $3000 - $3999 (8) $6000及以上
(3) $1000 - $1999 (6) $4000 - $4999

APPENDIX 4.3.3

Patients' Beliefs Questionnaire

(Malay version)

APPENDIX 4.3.3

KEPERCAYAAN PESAKIT

Terimakasih kerana memberi kerjasama anda menjawab soalan berikut. Kami harap dengan pertolongan anda, anda dapat lebih memahami masalah dan rawatan anda.

Soalan berikut ada tiga bahagian. Bahagian pertama berkenaan kepercayaan anda sebab anda dirawat di-Hospital Woodbridge; bahagian kedua berkenaan kepercayaan cara merawat masalah anda, dan dalam bahagian ketiga ada enam soalan yang anda perlu jawab 'Ya' atau 'Tidak'.

Bahagian Satu
Kerpecayaan punca sebab dirawat di-Hospital Woodbridge

Dibawah ini anda hanya perlu menyatakan berapa anda setuju atau tidak akan sebab-sebab anda dirawat di-Hospital Woodbridge. Disini tiada jawapan yang betul atau salah. Anda hanya perlu membulatkan menurut kerpecayaan anda.

Bantahan Kuat	Bantahan Ringan	Setuju Tidak Sepenuhnya	Setuju Sepenuhnya
1	2	3	4

Saya percaya saya dirawat di-Hospital Woodbridge sebab:

1.	Berfikir terlalu banyak..	1	2	3	4
2.	Masyarakat terlalu moden dan bersaing.	1	2	3	4
3.	Status kewangan keluarga saya.	1	2	3	4
4.	Perkara dalam kehidupan saya seperti penceraian, gagal dalam peperiksaan, kehilangan atau tiada pekerjaan, kematian dan lain-lain.	1	2	3	4
5.	Taraf hidup yang tinggi.	1	2	3	4
6.	Ibu bapa terlalu mengawal atau terlalu tidak terkawal semasa kecil.	1	2	3	4
7.	Akibat menonton televisyen.	1	2	3	4
8.	Masalah kewangan.	1	2	3	4
9.	Benda yang dimakan yang menjejaskan otak seperti makanan, dadah, alkohol dan lain-lain.	1	2	3	4
10.	Bersendirian dan diabaikan oleh masyarakat.	1	2	3	4

Bantahan Kuat	Bantahan Ringan	Setuju Tidak Sepenuhnya			Setuju Sepenuhnya
1	2	3			4
11. Pemikiran saya yang lemah.		1	2	3	4
12. Terkena ilmu hitam.		1	2	3	4
13. Tempat tinggal saya yang terlalu ramai orang atau keseorangan.		1	2	3	4
14. Masalah perhubungan keluarga atau kawan.		1	2	3	4
15. Perasaan seperti marah, cemburu. takut, sedih dll.		1	2	3	4
16. Tidak upaya menghadapi masalah hidup.		1	2	3	4
17. Masalah dengan sikap sendiri.		1	2	3	4
18. Penyakit atau kecederaan yang merosakkan otak semasa kecil atau muda.		1	2	3	4
19. Dari keluarga yang bermasalah.		1	2	3	4
20. Sesuatu yang berlaku semasa ibu mengandung saya.		1	2	3	4
21. Terlalu dimanjakan atau diabaikan oleh ibu bapa semasa kecil.		1	2	3	4
22. Kena rasuk.		1	2	3	4
23. Kehendak dan tekanan masyarakat.		1	2	3	4
24. Cara didikan.		1	2	3	4
25. Tiada ugama atau ugama sesat.		1	2	3	4
26. Keturunan dari ibu bapa, saudara-mara atau generasi lepas.		1	2	3	4
27. Tekanan belajar atau kerja.		1	2	3	4
28. Terkena benda 'kotor' atau ke tempat 'keras'.		1	2	3	4
29. Kerosakkan otak atau otak saya 'tak betul'.		1	2	3	4
30. Bersendirian tanpa sokongan dari keluarga atau kawan.		1	2	3	4

Bahagian Kedua
Kepercayaan Cara Rawatan

Dibawah ini anda hanya perlu menyatakan berapa anda setuju atau tidak bagaimana masalah anda boleh dirawatkan. Disini tiada jawapan yang betul atau salah. Anda hanya perlu membulatkan menurut kerpecayaan anda.

Bantahan Kuat	Bantahan Ringan	Setuju Tidak Sepenuhnya	Setuju Sepenuhnya
1	2	3	4

Saya percaya cara yang baik menolong masalah saya ialah:

1. Bercakap dengan keluarga, saudara-mara atau kawan. 1 2 3 4
2. Sembahyang dan/atau jumpa orang berugama. 1 2 3 4
3. Rawatan dalam wad atau klinik Woodbridge Hospital. 1 2 3 4
4. Jumpa bomoh. 1 2 3 4
5. Mengambil ubat yang diberikan oleh doktor. 1 2 3 4
6. Mendapatkan kaunselling professional. 1 2 3 4
7. Mendapatkan kasih-sayang dan sokongan dari orang. 1 2 3 4
8. Mengambil ubat tradisional dari tukang urut, bidan seperti akar kayu, jamu, sari ayu. 1 2 3 4
9. Mengajar keluarga saya faham masalah saya dan mengatasi masalah saya dengan lebih baik. 1 2 3 4

Bahagian Ketiga

Bulatkan 'Ya' atau 'Tidak'

1. Adakah anda rasa anda mempunyai sakit jiwa? Ya Tidak
2. Adakah anda rasa doktor menghormati kepercayaan anda? Ya Tidak
3. Adakah anda menghadapi masalah bila anda mengambil ubat dari doktor? Ya Tidak
4. Adakah anda jumpa pengubat tradisional atau orang berugama sebelum mendapat rawatan dari Hospital Woodbridge? Ya Tidak
5. Jika 'Ya', adakah anda masih mendapat rawatan tradisional atau rawatan dari orang berugama? Ya Tidak
6. Adakah anda rasa mendapat rawatan tradisional atau rawatan dari orang berugama boleh menolong masalah anda? Ya Tidak

Terima kasih atas kerjasama anda.

No. Rujukan : _____

KEYAKINAN TENTANG PUNCA PENYAKIT
Data Perangkaan Pesakit

Tarikh : _____ **Tempat :** _____

Jantina : (1) Lelaki (2) Perempuan **Keturunan :** (1) China (2) Melayu

Keturunan bapa : (1) China (2) Melayu (3) Lain-lain

Keturunan ibu : (1) China (2) Melayu (3) Lain-lain

Tarikh Lahir : _____ **Umur :** _____

Jangkamasa sakit : _____ **Umur semasa menghadapi sakit :** _____

Agama : (1) Buddha/Tao (2) Muslim (3) Kristian (4) Lain-lain

Pencapaian Persekolahan Paling Tinggi :

(1) Tidak bersekolah
(2) Sekolah Rendah
(3) Sekolah Menengah
(4) Sekolah Vocasional
(5) Politeknik/Universiti

Dalam bidang : _____

Status Perkahwinan : (1) Bujang (2) Berkahwin (3) Bercerai (4) Janda/Duda

Status Pekerjaan (Masa kini): (1) kerja sepenuh masa
(2) kerja separuh masa
(3) tidak bekerja

Sekiranya Bekerja, pekerjaan sekarang : _____

(1) Profesional
(2) Kerani
(3) Kemahiran
(4) Separa-mahir
(5) Tidak mahir
(6) Surirumah
(7) Pelajar

Jika tidak bekerja, pekerjaan terakhir ialah : _____

(1) Profesional
(2) Kerani
(3) Kemahiran
(4) Separa-mahir
(5) Tidak mahir
(6) Surirumah
(7) Pelajar

Status Pendapatan :

Berapakah jumlah pendapatan yang diterima sebulan oleh semua ahli keluarga anda?

(1) $499 dan ke bawah
(2) $500 - $999
(3) $1000 -$1999
(4) $2000 - $2999
(5) $3000 - $3999
(6) $4000 - $4999
(7) $5000 - $5999
(8) $6000 dan ke atas

APPENDIX 4.4.1

Caregivers' Beliefs Questionnaire

APPENDIX 4.4.1

CAREGIVER'S BELIEFS

Thank you for your cooperation in answering this questionnaire. Your help is very much appreciated and will contribute towards a better understanding of your beliefs and hopefully improve the treatment of your relative's/friend's problems.

This questionnaire has three parts. The first part asks about what you believe are the causes of your relative's/friend's need for treatment at Woodbridge Hospital; the second part asks about what you believe are the methods of treatment that can help his/her problems and the third part consists of six questions to which you need only to respond with a 'yes' or 'no'.

Part One

Caregiver's Beliefs about Causes of Need for Treatment at Woodbridge Hospital

People have different beliefs about the causes of their problems. The following statements are some common beliefs about the causes of need for treatment at Woodbridge Hospital.

Please indicate the extent to which you agree or disagree with each causal belief presented below by using the following scale. Circle one number for each belief. There are no right or wrong answers; only your own beliefs count here.

Disagree Strongly	Disagree Mildly	Agree Mildly	Agree Strongly
1	2	3	4

I believe my relative's/friend's need for treatment at Woodbridge Hospital is caused by:

1.	Thinking too much.	1	2	3	4
2.	Society becoming too modern & competitive.	1	2	3	4
3.	The financial status of his/her family.	1	2	3	4
4.	Events in his/her life eg divorce in the family, failing exams, loss of job or no job, death of a loved one.	1	2	3	4
5.	Our society's high cost of living.	1	2	3	4
6.	His/her parents being either too strict or too lenient when he/she was young.	1	2	3	4
7.	Influence of watching television.	1	2	3	4
8.	Financial problems.	1	2	3	4
9.	Something that he/she has eaten eg drugs, alcohol or food that affected his/her brain.	1	2	3	4
10.	Being isolated and neglected by society.	1	2	3	4

Disagree Strongly	Disagree Mildly	Agree Mildly	Agree Strongly
1	2	3	4

11. His/her mind is very weak.	1	2	3	4
12. Black magic by bomoh or 'kong tau'.	1	2	3	4
13. His/her accommodation - too crowded or too lonely.	1	2	3	4
14. Relationship problems with family or friends.	1	2	3	4
15. Strong emotions eg anger, jealousy, fears, sadness or frustration.	1	2	3	4
16. His/her inability to cope with life.	1	2	3	4
17. Problems with his/her character.	1	2	3	4
18. Some illness or physical injury that affected his/her brain when young.	1	2	3	4
19. Coming from a family with lots of problems.	1	2	3	4
20. Something that happened his/her mother when she was expecting him/her.	1	2	3	4
21. Being either too pampered or too neglected by his/her parents in his/her childhood.	1	2	3	4
22. Being possessed by evil spirits.	1	2	3	4
23. The demands and pressure of our society.	1	2	3	4
24. The way he/she was brought up by parents.	1	2	3	4
25. Having no religion or the wrong religion.	1	2	3	4
26. Genes inherited from his/her parents, relatives or previous generation.	1	2	3	4
27. Work or study stress.	1	2	3	4
28. Touching something 'dirty' or going to 'unclean' places.	1	2	3	4
29. Brain damage or something wrong with his/her brain.	1	2	3	4
30. Being all alone with no support from family or friends.	1	2	3	4

Part Two
Caregiver's Beliefs about Treatment

People have different beliefs about what helps their problems. The following statements are some common beliefs about how your relative/friend can be helped.

Please indicate how much you agree or disagree with each belief by using the following scale. Circle one number for each statement. There are no right or wrong answers; only your own beliefs count here.

Disagree Strongly	Disagree Mildly	Agree Mildly	Agree Strongly
1	2	3	4

I believe a good way of treating my relative's/friend's problems is:

1.	His/her parents, relative or friend talking to him.	1	2	3	4
2.	Praying to God and/or consulting a religious healer.	1	2	3	4
3.	Getting treatment from Woodbridge Hospital or clinic.	1	2	3	4
4.	Seeing a bomoh/temple medium.	1	2	3	4
5.	Taking medicine given by a doctor.	1	2	3	4
6.	Getting professional counselling.	1	2	3	4
7.	Getting love, care and support from people.	1	2	3	4
8.	Taking traditional medicine.	1	2	3	4
8.	Teaching his/her family to understand and deal with his/her problems better.	1	2	3	4

Part Three

Please circle 'Yes' or 'No' in response to the following 6 questions.

1.	Do you think your relative/friend has a mental illness?	Yes	No
2.	Do you feel that the doctors here respects **your beliefs** about the causes of your relative's/friend's need for treatment at Woodbridge Hospital?	Yes	No
3.	Does he/she have any problems from taking the doctor's medicine?	Yes	No
4.	Did you bring your relative/friend to consult a traditional or religious healer before seeking help from the hospital?	Yes	No
5.	If so, is he/she still getting treatment from a traditional or religious healer now?	Yes	No
6.	Do you think traditional medicine or religious healing can help his/her problems?	Yes	No

Thank you for your time and participation.

Ref. No:_____

CAREGIVER'S BELIEFS ABOUT CAUSES & TREATMENT

Demographic Data of Caregiver

Date: _____ **Place:** _____

Sex: (1) Male (2) Female **Race:** (1) Chinese (2) Malay

DOB: _____ **Age:** _____

Relationship to patient:
(1) Father (2) Mother (3) Spouse (5) Sibling
(4) Relative (5) Others (specify) _____

Religion: (1) Buddhist (2) Taoist (3) Catholic (4) Protestant
(5) Muslim (6) No religion (7) Others (specify) _____

Highest educational level attained:
(1) Primary
(2) 'N' level or lower
(3) 'O' level or equivalent
(4) 'A' level or equivalent
(5) Polytechnic/Diploma
(5) Tertiary
Major in:_____

Marital status: (1) Single (2) Married (3) Divorced/Separated (4) Widowed

Working Rate: Currently - (1) working full time
(2) working part time
(3) not working

If working, present job: _____
(1) Professional
(2) Clerical
(3) Skilled
(4) Semiskilled
(5) Unskilled
(6) Housework
(7) Student

If not working, last previous job: _____
(1) Professional
(2) Clerical
(3) Skilled
(4) Semiskilled
(5) Unskilled
(6) Housework
(7) Student

Socioeconomic status:
What is the total income earned per month by **all the people** in your household?
(1) $ 499 & below
(2) $ 500 - $999
(3) $1000 - $1999
(4) $2000 - $2999
(5) $3000 - $3999
(6) $4000 - $4999
(7) $5000 - $5999
(8) $6000 & above

APPENDIX 4.4.2

Caregivers' Beliefs Questionnaire

(Chinese version)

APPENDIX 4.4.2

照护人的信念

谢谢你们花时间回答此问卷。你们的帮忙将有助于我们更深地了解你们的信念并希望藉此更好地帮助你们的家人/朋友。

此问卷包含三个部分。第一部分是关于你们认为为什么你们的家人/朋友会在板桥医院接受治疗；第二部分是关于你们认为何种方法可以解决他们的问题；第三部分则包含六个你们只要回答‘是’或‘否’的问题。

第一部分
照护人对于病人进入板桥医院的起因

人们对于自己的困难或问题的起因各有不同的看法。以下是一段对于问题起因的看法，请说出你们对于此看法的认同程度并于每一看法圈出一个答案。这没有对或错的答案，只在于你们自己的看法。

激烈反对	反对	赞成	非常赞成
1	2	3	4

我认为我家人/朋友需要接受治疗的起因是：-

1. 想太多	1	2	3	4
2. 社会转变得太‘现代化’与‘竞争’	1	2	3	4
3. 自小的家庭经济背景	1	2	3	4
4. 生活上的经历如家中有人离婚、考试不及格、失业或心爱的人死亡	1	2	3	4
5. 生活水准太高	1	2	3	4
6. 小时候父母管教太严或太松	1	2	3	4
7. 电视节目的影响	1	2	3	4
8. 财务问题	1	2	3	4
9. 他所吃的食物影响他的大脑如毒品，酒精或食物	1	2	3	4
10. 被社会孤立或抛弃	1	2	3	4

激烈反对	反对	赞成	非常赞成
1	2	3	4

11. 意志薄弱	1	2	3	4
12. 巫术或降头	1	2	3	4
13. 居住环境太拥挤或太孤单	1	2	3	4
14. 与家人及朋友之关系	1	2	3	4
15. 情绪太强烈，如生气、妒忌、害怕、伤心、懊恼	1	2	3	4
16. 无法应付生活	1	2	3	4
17. 性格上有问题	1	2	3	4
18. 小时候疾病或身体上的创伤影响了大脑	1	2	3	4
19. 来自问题家庭	1	2	3	4
20. 当他母亲怀着他时所遭遇到的问题	1	2	3	4
21. 小时候父母过度宠爱或忽略	1	2	3	4
22. 被邪魔附体	1	2	3	4
23. 社会的要求与压力	1	2	3	4
24. 成长时父母的教育方式	1	2	3	4
25. 没有宗教或被宗教误导	1	2	3	4
26. 上一代，父母或亲戚的遗传基因	1	2	3	4
27. 工作或学习上的压力	1	2	3	4
28. 碰到“肮脏”的东西或去到“肮脏”的地方	1	2	3	4
29. 大脑受损或头脑有问题	1	2	3	4
30. 孤独没有得到家人或朋友的支持	1	2	3	4

第二部分
照护人对于问题解决方法的看法/信念

人们对于解决问题的方法各有不同的看法。下列是一般对于有助于解决问题的信念。请根据你的认同程度圈出一个答案。这并没有所谓对或错的答案，只在于你们自己的看法。

激烈反对	反对	赞成	非常赞成
1	2	3	4

我相信解决我家人/朋友的问题的好方法是：

1. 和父母，亲戚或朋友交谈	1	2	3	4
2. 向上帝祈祷或请教宗教领袖	1	2	3	4
3. 求助于板桥精神病院，以便得治疗	1	2	3	4
4. 求助于巫师、道士或牧师	1	2	3	4
5. 服用医生配给的西药	1	2	3	4
6. 征询专业人员的辅导	1	2	3	4
7. 得到别人的爱、关怀与支持	1	2	3	4
8. 服用传统药物	1	2	3	4
9. 教育家人让他们更明白及能更好地处理他的问题	1	2	3	4

第三部分

请于以下问题圈出‘是’或‘否’的答案

1. 你是否认为你家人/朋友患上了精神病?	是	否
2. 你认为他的医生有否尊重你的看法?	是	否
3. 他在服食医生给的药物后有否任何问题产生?	是	否
4. 在他入院之前你是否有带他去求助于传统或宗教的治疗?	是	否
5. 若有，他是否还继续此治疗?	是	否
6. 你认为此治疗是否对解决他的问题有所帮助?	是	否

谢谢大家花宝贵的时间参与。

参考号码：_____

照护人的信念
照护人的统计

日期：_____ 地点：_____

性别：(1) 男性 (2) 女性 种族：(1) 华 (2) 巫

出生日期：_____ 年龄：_____

和病人的关系：
(1) 父亲 (2) 母亲 (3) 兄弟姐妹 (4) 亲戚 (5) 其他 (请注明)：_____

宗教：(1) 佛教 (2) 道教 (3) 天主教 (4) 基督教
(5) 回教 (6) 没有信仰 (7) 其他 (请注明)：_____

最高教育程度：
(1) 小学
(2) 'N' 水准或以下
(3) 'O' 水准或相等程度
(4) 'A' 水准或相等程度
(5) 工艺文凭 / 文凭
(6) 大学程度

专攻：_____

婚姻状况：(1) 单身 (2) 已婚 (3) 离婚 / 分居 (4) 寡妇 / 鳏夫

职业：目前 - (1) 全职
(2) 兼职
(3) 无业

若有工作，现职：

(1) 专业人士 (4) 半技工 (7) 学生
(2) 文员 (5) 无特别技术
(3) 技术人员 (6) 家庭工

若没工作，前职：

(1) 专业人士 (4) 半技工 (7) 学生
(2) 文员 (5) 无特别技术
(3) 技术人员 (6) 家庭工

社会阶层：

全部家庭成员之每月总收入：

(1) $499及以下 (4) $2000 - $2999 (7) $5000 - $5999
(2) $500 - $999 (5) $3000 - $3999 (8) $6000及以上
(3) $1000 - $1999 (6) $4000 - $4999

APPENDIX 4.4.3

Caregivers' Beliefs Questionnaire

(Malay version)

参考号码：_____

照护人的信念
照护人的统计

日期：_____ 地点：_____

性别：(1) 男性 (2) 女性 种族：(1) 华 (2) 巫

出生日期：_____ 年龄：_____

和病人的关系：
(1) 父亲 (2) 母亲 (3) 兄弟姐妹 (4) 亲戚 (5) 其他 (请注明)：_____

宗教：(1) 佛教 (2) 道教 (3) 天主教 (4) 基督教
(5) 回教 (6) 没有信仰 (7) 其他 (请注明)：_____

最高教育程度：
(1) 小学
(2) 'N' 水准或以下
(3) 'O' 水准或相等程度
(4) 'A' 水准或相等程度
(5) 工艺文凭 / 文凭
(6) 大学程度

专攻：_____

婚姻状况：(1) 单身 (2) 已婚 (3) 离婚 / 分居 (4) 寡妇 / 鳏夫

职业：目前 - (1) 全职
(2) 兼职
(3) 无业

若有工作，现职：_____
(1) 专业人士
(2) 文员
(3) 技术人员
(4) 半技工
(5) 无特别技术
(6) 家庭工
(7) 学生

若没工作，前职：_____
(1) 专业人士
(2) 文员
(3) 技术人员
(4) 半技工
(5) 无特别技术
(6) 家庭工
(7) 学生

社会阶层：

全部家庭成员之每月总收入：
(1) $499及以下
(2) $500 - $999
(3) $1000 - $1999
(4) $2000 - $2999
(5) $3000 - $3999
(6) $4000 - $4999
(7) $5000 - $5999
(8) $6000及以上

APPENDIX 4.4.3

Caregivers' Beliefs Questionnaire

(Malay version)

APPENDIX 4.4.3

KEPERCAYAAN PENJAGA PESAKIT

Terimakasih kerana memberi kerjasama anda menjawab soalan berikut. Kami harap dengan pertolongan anda, anda dapat lebih mamahami masalah dan rawatan saudara anda.

Soalan berikut ada tiga bahagian. Bahagian pertama berkenaan kepercayaan anda sebab saudara anda telah dirawat di-Hospital Woodbridge; bahagian kedua berkenaan kepercayaan cara merawat masalah saudara anda, dan dalam bahagian ketiga ada enam soalan yang anda perlu jawab 'Ya' atau 'Tidak'.

Bahagian Satu
Kerpecayaan punca sebab dirawat di-Hospital Woodbridge

Dibawah ini anda hanya perlu menyatakan beberapa anda setuju atau tidak akan sebab-sebab saudara anda dirawat di-Hospital Woodbridge. Sini diada jawapan yang betul atau salah. Anda hanya perlu membulatkan menurut kerpecayaan anda.

Bantahan Kuat	Bantahan Ringan	Setuju Tidak Sepenuhnya	Setuju Sepenuhnya
1	2	3	4

Saya percaya saudara saya dirawat di-Hospital Woodbridge sebab:

1.	Berfikir terlalu banyak.	1	2	3	4
2.	Masyarakat terlalu moden dan bersaing.	1	2	3	4
3.	Status kewangan keluarga saya.	1	2	3	4
4.	Perkara dalam kehidupan-nya seperti penceraian, Gagal dalam peperiksaan, kehilangan atau tiada pekerjaan, kematian.	1	2	3	4
5.	Taraf hidup yang tinggi.	1	2	3	4
6.	Ibu bapanya terlalu mengawal atau terlalu tidak terkawal semasa kecil.	1	2	3	4
7.	Akibat menonton televisyen.	1	2	3	4
8.	Masalah kewangan.	1	2	3	4
9.	Benda yang dimakan yang menjejaskan otak. seperti makanan, dadah, alkohol dan lain-lain.	1	2	3	4
10.	Bersendirian dan diabaikan oleh masyarakat.	1	2	3	4

Bantahan Kuat	Bantahan Ringan	Setuju Tidak Sepenuhnya		Setuju Sepenuhnya	
1	2	3		4	
11. Pemikiran-nya yang lemah.		1	2	3	4
12. Terkena ilmu hitam.		1	2	3	4
13. Tempat tinggal-nya yang terlalu ramai orang atau keseorangan.		1	2	3	4
14. Masalah perhubungan keluarga atau kawan.		1	2	3	4
15. Perasaan seperti marah, cemburu. takut, sedeh dll.		1	2	3	4
16. Tidak upaya menghadapi masalah hidup.		1	2	3	4
17. Masalah dengan sikap sendiri.		1	2	3	4
18. Penyakit atau kecederaan yang merosakkan otak semasa kecil atau muda.		1	2	3	4
19. Dari keluarga yang bermasalah.		1	2	3	4
20. Sesuatu yang berlaku semasa ibu mengandung dia.		1	2	3	4
21. Terlalu dimanjakan atau diabaikan oleh ibu bapa-nya semasa kecil.		1	2	3	4
22. Kena rasuk.		1	2	3	4
23. Kehendak dan tekanan masyarakat.		1	2	3	4
24. Cara didikan.		1	2	3	4
25. Tiada ugama atau ugama sesat.		1	2	3	4
26. Keturunan dari ibu bapa, saudara-mara atau generasi lepas.		1	2	3	4
27. Tekanan belajar atau kerja.		1	2	3	4
28. Terkena benda 'kotor' atau ke tempat 'keras'.		1	2	3	4
29. Kerosakkan otak atau otak-nya 'tak betul'.		1	2	3	4
30. Bersendirian tanpa sokongan dari keluarga atau kawan.		1	2	3	4

Bahagian Kedua
Kepercayaan Cara Rawatan

Dibawah ini anda hanya perlu menyatakan beberapa anda setuju atau tidak bagaimana masalah saudara anda boleh dirawatan. Sini tiada jawapan yang betul atau salah. Anda hanya perlu membulatkan menurut kerpecayaan anda.

Bantahan Kuat	Bantahan Ringan	Setuju Tidak Sepenuhnya	Setuju Sepenuhnya
1	2	3	4

Saya percaya cara yang baik menolong masalah saudara saya ialah:

1. Bercakap dengan keluarga, saudara-mara atau kawan. 1 2 3 4
2. Sembahyang dan/atau jumpa orang berugama. 1 2 3 4
3. Rawatan dalam wad atau klinik Hospital Woodbridge. 1 2 3 4
4. Jumpa bomoh. 1 2 3 4
5. Mengambil ubat yang diberikan oleh doktor. 1 2 3 4
6. Mendapatkan kaunselling professional. 1 2 3 4
7. Mendapatkan kasih-sayang dan sokongan dari orang. 1 2 3 4
8. Mengambil ubat tradisional dari tukang urut, bidan seperti akar kayu, jamu, sari ayu. 1 2 3 4
9. Mengajar keluarga-nya faham masalah-nya dan Mengatasi masalah-nya dengan lebih baik. 1 2 3 4

Bahagian Ketiga

Bulatkan 'Ya' atau 'Tidak'

1. Adakah anda rasa saudara anda mempunyai sakit jiwa? Ya Tidak
2. Adakah anda rasa doktor menghormati kepercayaan anda ? Ya Tidak
3. Adakah saudara anda menghadapi masalah bila dia mengambil ubat dari doktor? Ya Tidak
4. Adakah anda membawa dia jumpa pengubat tradisional atau orang berugama sebelum mendapat rawatan dari Hospital Woodbridge? Ya Tidak
5. Jika 'Ya', adakah dia masih mendapat rawatan tradisional atau rawatan dari orang berugama? Ya Tidak
6. Adakah anda rasa rawatan tradisional atau rawatan dari orang berugama menolong masalah saudara anda? Ya Tidak

Terima kasih atas kerjasama anda.

No. Rujukan : _____

PENDAPAT PENJAGA YANG YAKIN TENTANG PUNCA PENYAKIT
Data Perangkaan Penjaga

Tarikh : _____ **Tempat :** _____

Jantina : (1) Lelaki (2) Perempuan **Keturunan :** (1) China (2) Melayu

Tarikh Lahir : _____ **Umur :** _____

Perhubungan dengan pesakit:
(1) Bapa (2) Ibu (3) Isteri/suami (3) Adik-beradik
(4) Saudara-mara (5) Lain-lain (keterangan) :_____

Agama : (1) Buddha/Tao (2) Muslim (3) Kristian (4)Lain-lain

Pencapaian Persekolahan Paling Tinggi :
(1) Tidak bersekolah
(2) Sekolah Rendah
(3) Sekolah Menegah
(4) Sekolah Vocasional
(5) Politeknik/Universiti

Utama dalam : _____

Status Perkahwinan : (1) Bujang (2) Berkahwin (3) Bercerai (4) Janda/Duda

Status Pekerjaan (Masa kini):
(1) kerja sepenuh masa
(2) kerja separuh masa
(4) tidak bekerja

Sekiranya Bekerja, pekerjaan sekarang : _____
(1) Profesional
(2) Kerani
(3) Kemahiran
(4) Separa-mahir
(5) Tidak mahir
(6) Surirumah
(7) Pelajar

Jika tidak bekerja, pekerjaan terakhir ialah : _____
(1) Profesional
(2) Kerani
(3) Kemahiran
(4) Separa-mahir
(5) Tidak mahir
(6) Surirumah
(7) Pelajar

Status Pendapatan :
Berapakah jumlah pendapatan yang diterima sebulan oleh semua ahli keluarga anda?
(1) $499 dan ke bawah
(2) $500 - $999
(3) $1000 -$1999
(4) $2000 - $2999
(5) $3000 - $3999
(6) $4000 - $4999
(7) $5000 - $5999
(8) $6000 dan ke atas

APPENDIX 5.1.1

Birchwood Insight Scale

BIRCHWOOD SCALE

Please read the following statements carefully and then tick the box which best applies to you:

	Agree	Disagree	Unsure
1. Some of my symptoms were made up in my mind.	☐	☐	☐
2. I have always been well mentally.	☐	☐	☐
3. I did not need medication.	☐	☐	☐
4. My stay in hospital was necessary.	☐	☐	☐
5. The doctor was right in prescribing medication for me.	☐	☐	☐
6. I did not need to be seen by a doctor or psychiatrist.	☐	☐	☐
7. If someone said I have had a nervous breakdown or a mental illness, they would be right.	☐	☐	☐
8. The unusual things I experienced were not due to an illness.	☐	☐	☐

Re: _____ Aw: _____ Rx: _____ Tot: _____

APPENDIX 5.1.2

Birchwood Insight Scale

(Chinese version)

APPENDIX 5.1.2

请仔细读以下的句子，之后在最适合的格子里打个勾：

	赞成	反对	不肯定
1. 我的某一些症状是我所想象出来。	☐	☐	☐
2. 我的心理一向来都很健康。	☐	☐	☐
3. 我不需要药物。	☐	☐	☐
4. 我的住院是必须的。	☐	☐	☐
5. 医生配药给我是对的。	☐	☐	☐
6. 我不需要看医生或心理医生。	☐	☐	☐
7. 人家说我有精神病是对的。	☐	☐	☐
8. 我不寻常的经历都不是出自任何病情。	☐	☐	☐

APPENDIX 5.1.3

Birchwood Insight Scale

(Malay version)

BIRCHWOOD SCALE

Sila baca ayat-ayat di-bawah ini dan tandakan kotak yang sesuai kepada anda:

	Setuju	Tidak setuju	Tidak pasti
1. Ada tanda-tanda penyakit saya dibuat sendiri di-fikiran saya.	☐	☐	☐
2. Saya adalah selalu sehat jiwa.	☐	☐	☐
3. Saya tidak memerlukan ubat.	☐	☐	☐
4. Saya tinggal di-hospital kerana diperlukan.	☐	☐	☐
5. Keputusan doktor memberi saya ubat adalah betul.	☐	☐	☐
6. Saya tidak perlu jumpa doktor atau pakar sakit jiwa.	☐	☐	☐
7. Jika ada orang yang mengetakan saya gelisah atau penyakit jiwa, kata-kata mereka memang benar.	☐	☐	☐
8. Perkara-perkara luar biasa yang saya alami itu bukanlah kerana saya berpenyakit.	☐	☐	☐

Re: _____ Aw: _____ Rx: _____ Tot: _____

APPENDIX 5.2.1

LUNSERS

(Liverpool University Neuroleptic Side-Effect Rating Scale)

APPENDIX 5.2.1

LUNSERS

Please tick off how much you have experienced the following symptoms over the last month:

	Not at all	Very little	A little	Quite a lot	Very much
Rash					
Difficulty staying awake during the day					
Increased dreaming					
Headaches					
Dry mouth					
Swollen/tender chest					
Difficulty concentrating					
Constipation					
Period problems					
Tension					
Dizziness					
Feeling sick					
Increased sex drive					
Tiredness					
Muscle stiffness					
Palpitations					
Difficulty remembering things					
Losing weight					
Lack of emotions					

	Not at all	Very little	A little	Quite a lot	Very much
Difficulty achieving orgasm/climax					
Depression					
Increased sweating					
Slowing of movements					
Sleeping too much					
Difficulty in passing water					
Muscle spasms					
Sensitivity to sun					
Diarrhoea					
Over-wet/drooling mouth					
Blurred vision					
Putting on weight					
Restlessness					
Difficulty in getting to sleep					
Shakiness					
Pins and needles					
Reduced sex drive					
New/unusual skin marks					
Parts of body moving on their own accord					
Itchy skin					
Periods less frequent					
Passing a lot of water					

APPENDIX 5.2.2

LUNSERS

(Liverpool University Neuroleptic Side-Effect Rating Scale)

(Chinese version)

LUNSERS

Please tick off how much you have experienced the following symptoms over the last month:
请说明在过去一个月里你多常经历下列症状(请在适当空格打勾)

	Not at all 完全不会	Very little 非常少	A little 很少	Quite a lot 经常	Very much 很频繁
Rash 发疹					
Difficulty staying aware during the day 难于保持清醒					
Increased dreaming 做梦次数增加					
Headaches 头痛					
Dry mouth 口舌发乾					
Swollen/ tender chest 胸部疼痛 / 肿胀					
Difficulty concentrating 难于集中精神					
Constipation 便秘					
Period problems 月经不顺					
Tension 情绪紧张					
Dizziness 晕眩					
Feeling sick 感觉不适					
Increased sex drive 性欲提高					
Tiredness 疲倦					
Muscle stiffness 肌肉僵硬					
Palpitations 心悸					
Difficulty remembering things 记忆力衰退					
Losing weight 体重减轻					
Lack of emotions 情绪波动不大					

Cond/

	Not at all 完全不会	Very little 非常少	A little 很少	Quite a lot 经常	Very much 很频繁
Difficulty achieving orgasm/ climax 难于达到性高潮					
Depression 沮丧					
Increased sweating 多汗					
Slowing of movements 行动迟缓					
Sleeping too much 睡眠过量					
Difficulty in passing water 小便困难					
Muscle spasms 肌肉痉挛					
Sensitivity to sun 对阳光敏感					
Diarrhoea 腹泻					
Over-wet/drooling mouth 胡言乱语					
Blurred vision 视觉模糊					
Putting on weight 体重增加					
Restlessness 心绪不宁					
Difficulty in getting to sleeping 难于入眠					
Shakiness 颤抖					
Pins and needles 发麻					
Reduced sex drive 性欲减退					
New/unusual skin marks 不寻常的皮肤斑					
Part of body moving on their own accord 肢体不受控制					
Itchy skin 皮肤痕痒					
Periods less frequent 经期不准					
Passing a lot of water 频尿					

APPENDIX 5.2.3

LUNSERS

(Liverpool University Neuroleptic Side-Effect Rating Scale)

(Malay version)

APPENDIX 5.2.3

LUNSERS

Sila tandakan kekerapan anda mengalami tanda-tanda yang berikut dalam bulan kebelakangan ini:

	Tidak pernah	Kadang-kadang	Sekali-sekala	Kerap	Terlalu kerap
Ruam					
Mengantuk pada waktu siang					
Bermimpi					
Sakit kepala					
Kering mulut					
Dada membengkak / mengendur					
Sukar untuk memberi tumpuan					
Sembelit					
Gangguan haid					
Ketegangan					
Pening					
Rasa mual					
Peningkatan daya seks					
Keletihan					
Otot mengeras					
Berdebar-debar					
Kesukaran untuk mengingati sesuatu.					
Kurang berat badan					
Kurang beremosi					

	Tidak pernah	Kadang-kadang	Sekali-sekala	Kerap	Terlalu kerap
Sukar mencapai kemuncak nafsu					
Kesedihan-					
Berpeluh dengan banyak					
Pergerakan yang lambat					
Terlalu banyak tidur					
Sukar untuk kencing					
Otot mengejang					
Peka kepada matahari					
Cirit- birit					
Air liur meleleh					
Kabur pemandangan					
Berat badan meningkat					
Resah					
Susah untuk tidur					
Menggeletar					
Kebas (sesemut)					
Kurang daya seks					
Tanda baru/luar biasa pada kulit					
Anggota badan bergerak dengan sendiri					
Gatal-gatal kulit					
Kekerapan haid berkurangan					
Kencing berlebihan					

APPENDIX 5.3.1

DAI - 10

(Drug Attitude Inventory - 10)

APPENDIX 5.3.1

DAI-10

Please tick the relevant box:

	True	False
1. For me, the good things about medication outweigh the bad.		
2. I feel weird like a "zombie" when on medication.		
3. I take medication on my own free choice.		
4. Medication makes me feel more relaxed.		
5. Medication makes me feel tired and sluggish.		
6. I take medication only when I am sick.		
7. I feel better on medication.		
8. It is unnatural for my mind and body to be controlled by medication.		
9. My thoughts are clearer on medication.		
10. By staying on medication, I can prevent getting sick.		

APPENDIX 5.3.2

DAI - 10

(Drug Attitude Inventory - 10)

(Chinese version)

APPENDIX 5.3.2

DAI-10

请於相关格子打勾(✓):

		对	错
1.	对我来说, 药物治疗之利大於弊.		
2.	药物治疗使我反应迟钝.		
3.	服用药物与否,由我自行决定.		
4.	药物治疗让我感觉更放松.		
5.	药物治疗让我感觉疲倦且行动迟缓.		
6.	我只在生病时服用药物.		
7.	药物治疗,使我感觉较好.		
8.	身心皆受药物控制,有违自然.		
9.	药物治疗让我思绪较清晰.		
10.	持续接受药物治疗让我远离病痛.		

APPENDIX 5.3.3

DAI - 10

(Drug Attitude Inventory - 10)

(Malay version)

APPENDIX 5.3.3

DAI-10

Sila tandakan petak yang berkenaan:

	Ya	Tidak
1. Bagi saya, pengambilan ubat-ubatan mempuyai lebih banyak kebaikan dari keburukan.		
2. Terasa diri saya seperti mayat hidup setelah mengambil ubat-ubatan.		
3. Saya mengambil ubat-ubatan atas kerelaan diri sendiri.		
4. Ubat-ubatan membuat saya lebih tenang.		
5. Ubat-ubatan membuat saya letih dan malas.		
6. Saya hanya mengambil ubat-ubatan semasa sakit.		
7. Saya berasa lebih ceria/gembira setelah mengambil ubat-ubatan.		
8. Adalah luarbiasa bagi ubat-ubatan mengawal minda dan badan saya		
9. Saya dapat berfikir dengan lebih jelas setelah mengambil ubat-ubatan.		
10. Saya dapat menjauhi peyakit dengan mengambil ubat-ubatan.		

APPENDIX 5.4

EPRS	BRIEF PSYCHIATRIC RATING SCALE (EPRS) (Page 1 of 2)
RATER'S INITIALS (First) _____	END OF WEEK (Circle One) Pretreat · Baseline · 1 · 4 · 8 · 12 · 16 · 20 · 24/Final

This form consists of 18 symptom constructs, each to be rated on a 7-point scale of severity ranging from "Not Present" to "Extremely Severe." If a specific symptom is not rated, enter "0" - Not Assessed. Choose the term which best describes the subject's present condition and circle the corresponding number.	0 = Not Assessed 1 = Not Present 2 = Very Mild 3 = Mild 4 = Moderate 5 = Moderately Severe 6 = Severe 7 = Extremely Severe
1. SOMATIC CONCERN: Degree of concern over present bodily health. Rate the degree to which physical health is perceived as a problem by the patient, whether complaints have a realistic basis or not.	0 1 2 3 4 5 6 7
2. ANXIETY: Worry, fear, or over-concern for present or future. Rate solely on the basis of verbal report of patient's own subjective experiences. Do not infer anxiety from physical signs or from neurotic defense mechanisms.	0 1 2 3 4 5 6 7
3. EMOTIONAL WITHDRAWAL: Deficiency in relating to the interviewer and to the interviewer situation. Rate only the degree to which the patient gives the impression of failing to be in emotional contact with other people in the interview situation.	0 1 2 3 4 5 6 7
4. CONCEPTUAL DISORGANIZATION: Degree to which the thought processes are confused, disconnected or disorganized. Rate on the basis of integration of the verbal products of the patient; do not rate on the basis of patient's subjective impression of his own level of functioning.	0 1 2 3 4 5 6 7
5. GUILT FEELINGS: Over-concern or remorse for past behavior. Rate on the basis of the patient's subjective experiences of guilt as evidenced by verbal report with appropriate affect; do not infer guilt feelings from depression, anxiety or neurotic defenses.	0 1 2 3 4 5 6 7
6. TENSION: Physical and motor manifestations of tension, "nervousness," and heightened activation level. Tension should be rated solely on the basis of physical signs and motor behavior and not on the basis of subjective experiences of tension reported by the patient.	0 1 2 3 4 5 6 7
7. MANNERISMS AND POSTURING: Unusual and unnatural motor behavior, the type of motor behavior which causes certain mental patients to stand out in a crowd of normal people. Rate only abnormality of movements; do not rate simple heightened motor activity here.	0 1 2 3 4 5 6 7
8. GRANDIOSITY: Exaggerated self-opinion, conviction of unusual ability or powers. Rate only on the basis of patient's statements about himself, or self in relation to others, not on the basis of his demeanor in the interview situation.	0 1 2 3 4 5 6 7
9. DEPRESSIVE MOOD: Despondency in mood, sadness. Rate only degree of despondency; do not rate on the basis of inferences concerning depression based upon general retardation and somatic complaints.	0 1 2 3 4 5 6 7

observed or reported

BRIEF PSYCHIATRIC RATING SCALE (BPRS) (Page 2 of 2)

This form consists of 18 symptom constructs, each to be rated on a 7-point scale of severity ranging from "Not Present" to "Extremely Severe." If a specific symptom is not rated, enter "0" - Not Assessed. Choose the term which best describes the subject's present condition and circle the corresponding number.	0 = Not Assessed 1 = Not Present 2 = Very Mild 3 = Mild 4 = Moderate 5 = Moderately Severe 6 = Severe 7 = Extremely Severe

10. HOSTILITY: Animosity, contempt, belligerence, disdain for other people outside the interview situation. Rate solely on the basis of the verbal report of feelings and actions of the patient toward others; do not infer hostility from neurotic defenses, anxiety nor somatic complaints. *(Rate attitude toward interviewer under "uncooperativeness.")*	0 1 2 3 4 5 6 7
11. SUSPICIOUSNESS: Belief *(delusional or otherwise)* that others have now, or have had in the past, malicious or discriminatory intent toward the patient. On the basis of verbal report, rate only those suspicions which are currently held whether they concern past or present circumstances.	0 1 2 3 4 5 6 7
12. HALLUCINATORY BEHAVIOR: Perceptions without normal external stimulus correspondence. Rate only those experiences which are reported to have occurred within the last week and which are described as distinctly different from the thought and imagery processes of normal people.	0 1 2 3 4 5 6 7
*13. MOTOR RETARDATION: Reduction in energy level evidenced in slowed movements. Rate on the basis of observed behavior of the patient only; do not rate on the basis of patient's subjective impression of own energy level.	0 1 2 3 4 5 6 7
*14. UNCOOPERATIVENESS: Evidence of resistance, unfriendliness, resentment, and lack of readiness to cooperate with interviewer. Rate only on the basis of the patient's attitude and responses to the interviewer and the interview situation; do not rate on basis of reported resentment or uncooperativeness outside the interview situation.	0 1 2 3 4 5 6 7
15. UNUSUAL THOUGHT CONTENT: Unusual, odd, strange, or bizarre thought content. Rate here the degree of unusualness, not the degree of disorganization of thought processes.	0 1 2 3 4 5 6 7
*16. BLUNTED AFFECT: Reduced emotional tone, apparent lack of normal feeling or involvement.	0 1 2 3 4 5 6 7
*17. EXCITEMENT: Heightened emotional tone, agitation, increased reactivity.	0 1 2 3 4 5 6 7
18. DISORIENTATION: Confusion or lack of proper association for person, place or time.	0 1 2 3 4 5 6 7

Rater's Signature _____

* observed or reported

APPENDIX 5.5

GAF

(Global Assessment of Functioning Scale)

Global Assessment of Functioning (GAF) Scale

Consider psychological, social, and occupational functioning on a hypothetical continuum of mental health–illness. Do not include impairment in functioning due to physical (or environmental) limitations.

Code (Note: Use intermediate codes when appropriate, e.g., 45, 68, 72.)

100 | 91 **Superior functioning in a wide range of activities, life's problems never seem to get out of hand, is sought out by others because of his or her many positive qualities. No symptoms.**

90 | 81 **Absent or minimal symptoms (e.g., mild anxiety before an exam), good functioning in all areas, interested and involved in a wide range of activities, socially effective, generally satisfied with life, no more than everyday problems or concerns** (e.g., an occasional argument with family members).

80 | 71 **If symptoms are present, they are transient and expectable reactions to psychosocial stressors** (e.g., difficulty concentrating after family argument); **no more than slight impairment in social, occupational, or school functioning** (e.g., temporarily falling behind in schoolwork).

70 | 61 **Some mild symptoms** (e.g., depressed mood and mild insomnia) **OR some difficulty in social, occupational, or school functioning** (e.g., occasional truancy, or theft within the household), **but generally functioning pretty well, has some meaningful interpersonal relationships.**

60 | 51 **Moderate symptoms** (e.g., flat affect and circumstantial speech, occasional panic attacks) **OR moderate difficulty in social, occupational, or school functioning** (e.g., few friends, conflicts with peers or co-workers).

50 | 41 **Serious symptoms** (e.g., suicidal ideation, severe obsessional rituals, frequent shoplifting) **OR any serious impairment in social, occupational, or school functioning** (e.g., no friends, unable to keep a job).

40 | 31 **Some impairment in reality testing or communication** (e.g., speech is at times illogical, obscure, or irrelevant) **OR major impairment in several areas, such as work or school, family relations, judgment, thinking, or mood** (e.g., depressed man avoids friends, neglects family, and is unable to work; child frequently beats up younger children, is defiant at home, and is failing at school).

30 | 21 **Behavior is considerably influenced by delusions or hallucinations OR serious impairment in communication or judgment** (e.g., sometimes incoherent, acts grossly inappropriately, suicidal preoccupation) **OR inability to function in almost all areas** (e.g., stays in bed all day; no job, home, or friends).

20 | 11 **Some danger of hurting self or others** (e.g., suicide attempts without clear expectation of death; frequently violent; manic excitement) **OR occasionally fails to maintain minimal personal hygiene** (e.g., smears feces) **OR gross impairment in communication** (e.g., largely incoherent or mute).

10 | 1 **Persistent danger of severely hurting self or others** (e.g., recurrent violence) **OR persistent inability to maintain minimal personal hygiene OR serious suicidal act with clear expectation of death.**

0 Inadequate information.

The rating of overall psychological functioning on a scale of 0–100 was operationalized by Luborsky in the Health-Sickness Rating Scale (Luborsky L: "Clinicians' Judgments of Mental Health." *Archives of General Psychiatry* 7:407–417, 1962). Spitzer and colleagues developed a revision of the Health-Sickness Rating Scale called the Global Assessment Scale (GAS) (Endicott J, Spitzer RL, Fleiss JL, Cohen J: "The Global Assessment Scale: A Procedure for Measuring Overall Severity of Psychiatric Disturbance." *Archives of General Psychiatry* 33:766–771, 1976). A modified version of the GAS was included in DSM-III-R as the Global Assessment of Functioning (GAF) Scale.

APPENDIX 5.6

Paitent's Demographic Data Inventory

&

Compliance Rating Scale (CRS)

APPENDIX 5.6

Date: _____ **Ref. No:** _____

COMPLIANCE WITH ANTIPSYCHOTIC MEDICATION & FOLLOW-UP

Information obtained from patient's casenotes 6 months prior to current admission & from interview with patient, caregiver and clinician

Name: _____ Telephone No: _____

NRIC: _____

1. Sex: (1) Male (2) Female ☐
2. Race: (1) Chinese (2) Malay ☐
3. Age (at time of study): _____ (years)
4. DOB: _____
5. Marital status: (1) Single (2) Married (3) Divorced/Separated (4) Widowed ☐
6. Educational level: (1) No formal education (2) Primary (3) Secondary (4) Vocational (5) PreU/JC (6) Tertiary (7) Others ☐
7. Employment (E) status at first interview: (1) Employed (2) Unemployed (3) Attending Day Centre (4) Homemaker (5) Student ☐
8. Religion: (1) Buddhist/Taoist (2) Muslim (3) Christian (4) Others ☐

Background Hx:

1. Age of onset of illness: _____years; Date (year) _____
10. Age at first contact with psychiatric service: _____years; Date (year) _____
11. Duration of illness: _____ (years)
12. No. of admissions to date: _____
13. Date of current admission: _____

Patient's living arrangements: (A)

14. Patient stays: (1) Alone (2) With family (3) With friends (4) In group homes (5) In institution (6) No accommodation ☐

<u>Compliance with medication</u>:

Compliance Rating Scale (CRS):
[Adapted from Kemp et al (1998) and rated based on information from patient's casenotes and from interview with patient, caregiver and clinician]

7-point rating scale:
1 - complete refusal
2 - partial refusal eg refusing depot drugs or accepting only minimal dose
3 - reluctant acceptance eg only 'cos compulsory or questioning need for treatment often
4 - occasional reluctance ie questioning need occasionally
5 - passive acceptance
6 - moderate participation ie some knowledge & interest, no prompting needed
7 - active participation ie full acceptance & taking some responsibility for own treatment

15. Compliance Rating on Patient: ☐

16. Reason if compliance is poor: (1) N/A (2) No insight (3) Side effects
(4) Cultural & religious beliefs (patient and/or family)
(5) No environmental supervision or support
(6) Others (eg idiosyncratic reasons) specify: _____ ☐

17. Frequency medication missed: (1) N/A
(2) Very rarely
(3) Sometimes(<twice a week)
(4) Often (>twice a week) ☐

<u>Compliance with follow-up</u>: (CFU)

18. (1) Regular (rarely missed any appointment)
(2) Irregular (sometimes/occasionally missed or late for appointment)
(3) Defaulted completely (_____ months/years) ☐

19. No. of appointments missed in 6 months prior to current admission: _____

APPENDIX 5.7

Patient's Outcome Inventory & Compliance Rating Scale

APPENDIX 5.7

Date: _____ **Ref:** _____

OUTCOME OF PATIENT 6 MONTHS AFTER INITIAL ASSESSMENT

Information obtained from patient's casenotes 6 months after initial assessment & from interviews with patient, caregiver and clinician

1. BPRS2 Score: _____ 2. **GAF2** Scale Score: _____

3. Number of **rehospitalizations:** _____

4. Length of **community tenure:** _____

5. **Compliance with Medication:**
   [Adapted from Kemp et al (1998) and rated based on information from patient's casenotes and from interview with patient, caregiver and clinician]

7-point rating scale:
1 - complete refusal
2 - partial refusal eg refusing depot drugs or accepting only minimal dose
3 - reluctant acceptance eg only 'cos compulsory or questioning need for treatment often
4 - occasional reluctance ie questioning need occasionally
5 - passive acceptance
6 - moderate participation ie some knowledge & interest, no prompting needed
7 - active participation ie full acceptance & taking some responsibility for own treatment

Outcome Compliance Rating Scale **(CRS2)** ☐

6. **Frequency medication missed:** (1) N/A (2) Very rarely
   (3) Sometimes(<twice a week)
   (4) Often (>twice a week) ☐

7. **Compliance with follow-up: (CFU2)** ☐
   (1) Regular (rarely missed any appointment)
   (2) Irregular (sometimes/occasionally missed or late for appointment)
   (3) Defaulted completely (_____ months/years)

8. **Patient's living arrangements: (A2)** ☐
   Patient stays (1) Alone (2) With family (3) With friends
   (4) In group homes (5) In institution (6) Has no accommodation ☐

9. **Employment Status: (E2)**
   (1) Currently employed
   (2) Was employed for short while, intends to seek further employment
   (3) Not employed since discharge
   (4) Attending Day Centre

10. Do you think you have a mental illness? (1) Yes (2) No ☐

11. What do you feel is the cause of your problems and the need for you to take medication from this clinic?

Patient's verbatim answer: _____

---

12. **Classification** of patient's answer: ☐
    (1) Biological (2) Psychosocial (3) Intrapsychic
    (4) Supernatural (5) Social (6) State Of Society

13. **Psychoeducation Intervention:** (1)Group (2) Individual (3) Control ☐

APPENDIX 6.1

Vignettes

(Supernatural beliefs of Chinese lay sample & patient)

APPENDIX 6.1

Vignette of 4 Chinese lay persons' supernatural beliefs

(extract from a small group discussion of younger, lower educated males)

This sort of strange behaviours happen when the person has been possessed by spirits. During the Hungry Ghosts month between July and August every year, there are a lot of unhappy spirits around; must be careful not to offend any of these spirits.

I believe as well. People say that you shouldn't go to certain places – spirits have favourite places they like to stay in during that time of the year.

Better burn a lot of offerings, put more fruits on the altar otherwise they might be unhappy and disturb us.

Vignette of a Chinese patient's supernatural beliefs

(extract from a interview with a 35 year old male, lower educated patient)

Look at me now; I can't even go to work ever since I was 19. Was during my National Service days, sometime in July or August, you know, during the month of the Hungry Ghost. I was so tired returning from camp that evening, took the wrong turning and walked into this place. My mother has always told me not to go there. Ever since that 'dirty' spirit entered my body, I've been hearing it talk to me all the time; it's like I've been cursed for life. Don't know what spirit it is, could be a dead relative, maybe very unhappy when he died and my parents didn't appease it enough. Now, it always disturbs me, tell me I'm useless. Really makes me so angry. Keep telling me parents to burn more of the hell money for it, but they never listen and I suffer all the time.

APPENDIX 6.2

Vignettes

(Supernatural beliefs of Malay lay sample & patient)

APPENDIX 6.2

Vignette of 4 Malay lay persons' supernatural beliefs

(extract from a small group discussion of older, lower educated females)

These women, I've seen them behaving very strangely in the town. Maybe they rejected some men who liked them. It's possible that men use black magic to get the women who are not interested in them and reject their friendship.

Yes, I've heard of that before. I feel sorry for the girl, but what to do, these men go to the *bomohs* who will perform this type of black magic, make *charms* on the women just for money.

And then the girl becomes like *gila* (insane), acts like everybody want to do bad things to her, stay at home all the time talking to herself, doesn't even look after her own personal hygiene. Sometimes these *charms* can be very strong, only another stronger *bomoh* can break the *charm*, otherwise the poor girl remains like that all her life.

Vignette of a Malay patient's supernatural beliefs

(extract from a interview with a 46 year old female, lower educated patient)

I've come here to stay many, many times. It's all because when I was young, this man, I didn't like him at all, he wanted to marry me. I refused even after he asked my parents, and one day I just started feeling very sick and angry. People started talking bad about me, scolding me. I dared not even go out. It's that man, he put this black magic spell on me; he's so wicked. The spell really spoilt my whole life. Even now, the spell hasn't gone away. Whenever I go out, I feel people are looking at me, saying bad things about me. That's why I still cannot work now. Sometime I feel so frightened that people want to harm me.

APPENDIX 6.1

Vignette of 4 Chinese lay persons' supernatural beliefs

(extract from a small group discussion of younger, lower educated males)

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I believe as well. People say that you shouldn't go to certain places – spirits have favourite places they like to stay in during that time of the year.

Better burn a lot of offerings, put more fruits on the altar otherwise they might be unhappy and disturb us.

Vignette of a Chinese patient's supernatural beliefs

(extract from a interview with a 35 year old male, lower educated patient)

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Vignettes

(Supernatural beliefs of Malay lay sample & patient)

APPENDIX 6.2

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